

of Bodies, though, in Appearance, perfectly empty, are, in Reality, common Air. And since this Air must certainly, in those Interstices, perform all the Effects which are proper to it, hence an infinite Number of the Operations of Nature will of consequence depend upon it. Secondly, it is a curious Observation in Hydrostatics, that the heavy and fluid Air presses upon every Side of Bodies with an equal Force, whether the horizontal, vertical, superior, inferior, or oblique. This is demonstrated in that Science.

We now proceed to the Consideration of those peculiar Properties which are possessed by the Air alone.

The first then that here offers itself to our Observation, is its Elasticity. This is that singular Quality, by which all known Air, possessing a certain Space, and being confined there, so that it cannot escape, will, if it is pressed together by a determined Weight, reduce itself into a less Space, which will be always in a reciprocal Proportion to the Quantity of the Weight that acts upon it; with this Circumstance, however, always attending it, that it will constantly, by a spontaneous Expansion, recover again the Space it had lost, in Proportion as the compressive Force is diminished; and when this Force comes to be the same as it was in the Beginning of the Experiment, then the aerial Mass will always infallibly expand itself throughout the whole Space that it before took up, provided that no other Cause, in the mean time, intervenes to prevent it. If the Pressure is lessened, Air extends itself to a larger Space; if it is increased, it reduces itself into a less.

Now such a Disposition to yield so readily to such a Compression, and yet recover itself with such a Spring, I do not remember to have been observed in any other Liquid hitherto examined. It is certain no such thing is discovered in Alcohol, Oil, Water, Spirits, or any Lixivia. For though all these are contracted by Cold, and dilated by Heat, yet they are not compressed by Weight so as to take up less Space; nor being freed from Pressure, do they expand themselves. This, therefore, is the peculiar Property of Air.

This Elasticity of the Air cannot be destroyed, inasmuch as, upon Examination by every Kind of Experiment, it has always remained elastic; nor are its elastic Parts, either by long Rest, or the greatest Pressure, ever so altered as to lose their Elasticity. For Mr. Boyle and Mariotte having, with a particular View to this, kept common Air strongly compressed, and shut up in a Wind-gun, found, upon their setting it again at Liberty, that it was perfectly as elastic as it was before. And lastly, that great Geometrician Robervalius, examining Air which had been shut up for the Space of fifteen Years in the like Manner, found that it had not lost any thing of its Elasticity. See *Du Hamel, Hist. de l'Acad. Roy. des Sc. p. 368*. But it will hereafter further appear, that even those elastic Particles of Air which are detained in the Interstices of the most internal Parts of fluid or solid Bodies, do, when they are set free from those Confinements, and are afterwards united to other Particles, exert again that Elasticity, which they seemed to have lost, to such a Degree, as not to give the least Indication of retaining it; for as soon as ever they recover their Liberty, they produce incredible Effects, which can be attributed to their Elasticity alone; and hence it evidently appears, that neither Time nor Rest, nor even their supposed Concretion with animal, vegetable, or fossil Substances, are ever able to destroy this wonderful Property of the Air. In the mean time, however, such is the Nature of Air, that its elastic Particles, when separate and by themselves, may be so united to other Bodies, by which they are intercepted, or at least may rest in them in such a Manner, as not, for Ages together, to produce any elastic Effect; and that upon being freed from those Bodies, and united with others of the like Nature, they demonstrate that they have intirely retained their Elasticity. Hartshorn, for Example, may be preserved for Ages; and yet, upon a chymical Examination of some which had been kept above fifty Years, and by this Means was grown exceeding hard and dry, it is surprising what a prodigious Quantity of elastic Air it yielded in its Resolution. Hence, therefore, it is very probable, that one single, aerial Particle is not elastic, with respect to the Increase or Decrease of incumbent Weights; but that this Elasticity then only exists, when two such Particles of Air come to touch and repel one another; and that, consequently, if these aerial Particles were so far distant from each other, as that this repelling Force should utterly cease, then this whole Fluid would, for that time, neither spontaneously expand itself, nor in the least resist any Compression; but would then only exert this Power, when by being pressed close to one another, they should begin to come within the Sphere of each other's Activity. One aerial Particle, therefore, would have nothing of this elastic Power; but it would be only the joint Effort of several. Hence then, in all Appearance, the elastic Force of Air ought to be regarded as constant and immutable.

But in what Manner, or to what Degree soever Air has been condensed by the utmost Power of Weights, it has always remained, even in that Condition, very fluid; for after it has been contracted to a great Density, it has constantly restored

itself again, so as to fill exactly the former Space; all the Particles receding from each other as readily as they before came together. Since, therefore, by every Experiment that has been hitherto made, this Property has been always found to take place, we may safely assert, that the Fluidity of the Air, in all the large Compass, from the most rarefied to the most condensed, remains without Alteration; and that therefore it is neither capable of being consolidated by the intensest Cold, or the greatest Degree of Compression we are acquainted with.

But nothing in this Elasticity of the Air appears a greater Paradox to Persons not acquainted with these Speculations, than what Mr. Boyle has evinced with much Certainty, viz. that the elastic Power which prevails in any particular Portion of the Air, can, without any greater Condensation than what is owing to the compressing Air itself, sustain all the Force of a whole Column of the incumbent Atmosphere. And secondly, that this elastic Power, in such a very small Portion of Air, can, by expanding itself, repel the Bodies which compress it with as much Force, as that which is exerted by the whole external Body of Air.

This efficacious Power of the Air the Chymists ought to have a particular Regard to, since in all their Operations performed by Means of Fire in close Vessels, this elastic Force produces wonderful and often very terrible Effects, acting with a violent compressive Force upon the Contents, often bursting the Vessels, and producing many other great Events.

A very little Portion of Air, therefore, wherever confined, is capable of producing the very same Effects as a very large Quantity in another Place; for if any Portion of common Air is contained within a Cavity that is easily compressible, it will there sustain the whole Pressure, and wholly keep out the intire Body of the Atmosphere. And whenever the Air in that Place is heated by Fire, or freed from its external Pressure, it immediately, by expanding itself, becomes so rare, as to produce such Effects as are equal to those of the greatest Body of Air.

Another Law of the Elasticity of the Air is, that when it is condensed in a certain and determinate Degree, it acquires by the Application of Heat a greater Power to expand itself on all Sides, than it had before. And this Power of Rarefaction arising from Heat, has the same Effect as if that Air had been made denser in Proportion to the Degree of Heat which it before obtained.

This Expansion by Heat is sooner brought about in Air, than any other Body, either fluid or solid, hitherto known in the Universe. In Drebbelius's Thermometer, an Increase of Heat, not perceptible without such a Contrivance, shews immediately a sensible Rarefaction of the Air.

It is farther evident from Experiments, that of all known Bodies, Air is the only one which can be expanded by Fire to so great a Degree; for Air, by the Application of Fire, becomes so rare, that neither the Measure or Limits of such its Dilatation have been yet discovered. The Heat of boiling Water expands the Air to a third Part of its Bulk. *Hist. de l'Acad. Roy. des Scien. 1699. p. 101*. In the Heat then which is capable of fusing Iron, certainly this Expansion of the Air must be immensely great.

In this Part of the History of Air Boerhaave seems to mistake; for Water is capable of a much greater Degree of Expansion by Fire than Air, so as to exert a prodigious Force, by which very large Weights are easily elevated. Now I know no Experiment which evinces clearly that it is possible to rarefy Air by the Heat of an artificial Fire, so as to make it take up more than three times the Space into which it is expanded in its natural State.

It is also found, that unequal Masses of Air, but of the same Density, are always expanded in the same Measure by the same Degree of Fire; so that these Expansions in the same Degree of Density, by a constant Law of Nature, always are in Proportion to the Augmentations of the Heat applied. Hence, therefore, if the Expansion of Air of a given Density, by a certain Degree of Heat, is once discovered, it will constantly hold good in all similar Cases. Upon this Subject let me refer you to some very curious Observations in the *Memoirs of the Royal Academy of Sciences, 1699. p. 113*. and likewise in the *Memoirs* for 1702.

But with regard to the Elasticity of the Air, this is likewise constantly observed, that the more it is condensed by Pressure, the greater elastic Force will it acquire by the same Degree of Fire, and that nearly in a direct Ratio of the Densities; which very curious Property, to the great Advantage of Chymistry, was discovered by the ingenious Monsieur des Amontons's *Hist. de l'Acad. Roy. des Scien. 1702. Mem. 155*. Hence, then, it follows, that a Portion of Air that is exceeding dense, may, by Means of a very little Fire, acquire the greatest resisting Force.

If, therefore, it were possible that common Air could in Reality be condensed into a Space eight hundred times less than what it naturally takes up, then it might, by being acted upon by the Heat of boiling Water, sustain 29600 Inches of Mercury; since common Air, by the same Degree of Heat, will elevate it

to 37; which immense Force teaches us, that if the fiercest subterraneous Fire should, in the Bowels of the Earth, be applied to Air reduced to one eight hundredth Part of its Bulk, there would thence arise a most incredible Force, vastly superior to all that we are acquainted with. This, however, is certain, that if you increase the Density of the Air, and at the same time augment the Heat that is applied to it, then the elastic Power of the Air will always be increased in a compound Ratio of both.

But, on the contrary, the less the Air is compressed, the less is the elastic Force that it acquires from the same Degree of Heat. So that Air which by any Means is rendered twice rarer, requires twice as much Heat to make it require the same Elasticity that it had before, and thus in any Degree of Rarefaction.

These things the same celebrated Author, in the Places last mentioned, has demonstrated by the most correct Experiments. And hence we understand, that the Air in the highest Regions of the Atmosphere will scarcely acquire any Increase of its elastic Force from the most intense Heat; but, on the contrary, will become almost unactive, on account of its exceeding Rarity; and this answers perfectly to Observation.

The last Law which is discovered in the Elasticity of Air is, that it is contracted into a smaller Space by Cold, as it is by an Increase of Weight. Hence its Density is always increased in Proportion to the Augmentation of the Cold.

It may be of some Importance to Chymistry to consider these Properties of Air, which I have related from the illustrious Boerhaave, who has collected every thing material which occurs in Authors who have wrote on this Subject. It will be of equal Use, with respect to Physic, to be acquainted with those Bodies which float in the Air. And these are incredibly numerous, of various Natures, and perfectly different in different Parts of the Atmosphere. We shall not therefore deviate much from the Truth, if we consider it as a Chaos, in which Corpufcles of almost every Kind being confounded together, make a Composition, consisting of the most different Things, of which it will be incumbent on us to give a particular Account, that from hence we may be enabled to make just Conclusions concerning it.

In the first Place, then, in the common Air, there is always and every where Fire, or Heat.

In the second Place, there is Water contained always in the Air, and in every Part of it, and that in such a Manner, that it does not appear possible, by any known Methods, to separate the Water intirely from it. Water is every Moment perspiring from every Person in Health, in an invisible Vapour. Sanctorius computes, that in the Space of one Night and Day, there exhales from such a Person nearly the Weight of five Pounds, much the greatest Part of which is Water. A vast Quantity of aqueous Steams must therefore be continually exhaling from the Animals of all Kinds that are scattered all over the Earth; and that all Plants likewise send forth a dewy aqueous Vapour, is a Thing that has been long confirmed by Observation: But the very industrious and ingenious Dr. Hales has lately, in his curious Treatise of *Vegetable Staticks*, proved by Experiments what prodigious Quantities of aqueous Vapours exhale from Plants; not to mention the Water, that by means of subterraneous, culinary and chymical Fires, is continually rarefied so as to rise up into the Air. Dr. Halley, from the Observations which he made with the greatest Care and Accuracy, has made it appear, that from the Surface of the Mediterranean alone, in one Summer's Day, there exhales, by the Heat of the Season only, without any Assistance from the Wind, 52,800,000,000 Hogheads of Water. See the *Phil. Transf.* And the Wind and Sun elevate from the Surface of that Sea, still a much larger Quantity, *ibid.* If we compare now the Quantity of Fog, Dew, Rain, Hoar-frost, Hail, Snow, and nocturnal Moisture, that may be collected in the Space of a whole Year, with the Water which in the same Space of Time, by means of the natural Heat, has exhales into the Air, we shall find, that in one Year there falls upon the Earth enough to cover the Surface of it to about thirty Inches high, as the industrious Kruquius has plainly proved by his Meteorological Tables. Hence it is probable, that there every Year exhales into the Air, from the whole Surface of the Earth, a Quantity equivalent to thirty Inches Height of Water. And of consequence, since the *Area* of the Earth's Surface is sufficiently known, it is easy to compute the immense Quantity of Water that is perpetually suspended in the Air.

And that Water is contained in every Portion of the Air, is evident to the Eye in the Air-pump; for there, as the Air, by the Action of the Pump, becomes more and more rare, and less fit to suspend the Water, the Inside of the Glass becomes clouded with an aqueous Moisture; the same Experiment thus evidently evincing, that Water does really reside in all Parts of the Air; and that as the elastic Part of the Air is rendered more rare, it becomes less capable of retaining it.

But that there is a very large Quantity of Water always and every where dispersed through the Air, appears evidently to

the Eye in dry, alkaline, fiery Fixed Salts; for if these, when they are perfectly pure, are exposed to the Air, they will spontaneously dissolve, by attracting the Water out of it. I took at nine in the Morning, two Ounces and one Dram of Salt of Tartar, dried in such an intense Heat, that it melted in the Crucible, so that no Water at all remained in it. I then placed it in a Glass Bason, made very clean, and in this Manner exposed it to the Air, in cold, dry Weather, from the 17th of January to the 20th, in a Place which was very dry. The Consequence was, that upon examining it by the Balance, it weighed three Ounces four Drams and a half; so that it increased in Weight an Ounce, three Drams and a half. But if we thus examine this Salt by a Pair of Assay Scales, we find it is every Moment gaining something in Weight. And as there appears such an Increment of Weight within the Compass of three Days, so if it is kept a considerable time in the Air, the whole of it generally dissolves into a Liquor intirely fluid, pinguious, thick, somewhat tenacious, and unctuous, which is almost three times heavier than the Salt first exposed, and this Liquor the Chymists call *Oil of Tartar per Deliquium*; besides which, there will remain at the Bottom of the Bason a very small Quantity of a white Earth. If this Liquor thus produced by the Salt and Air be put into a Glass Cucurbit, with an Alembic, and distilled to a Dryness, very pure elementary Water will come over into the Receiver, and a dry Salt of Tartar, purer than it was before, and less ponderous, will remain at the Bottom of the Cucurbit. The Salt, therefore, receives from the Air this large Quantity of Water. And here we may observe, that the Water thus communicated to the Salt from the Air, dissolves it in a very different Manner from what it would have been dissolved by pure Water poured upon it, for this Dilution in the Air being slow and successive, by the Application but of a very small Quantity of Water at a time, dissolves only the pure alkaline Salts that are easiest of Solution, and therefore separates this Part from the rest which is dissolved with more Difficulty, that is, which is somewhat more terrestrial; and this cannot be effected by any other Art. And hence, by such repeated Dissolutions and Coagulations this whole Salt is at last converted into an Earth, and a volatile Principle, which disappears, and is not perceptible afterwards. This Van Helmont knew very well, and other Alchymists had come to the Knowledge of it long before him. In this Experiment, it appears particularly surprising, that the very Moment, as it were, that this Salt is taken out of the strongest Fire, and exposed to the Air, this Humectation and Dissolution commence, and the Increase of Weight perceptible by an exact Balance is begun, and from that Instant increases every Moment. And this, which I have very often beheld with Astonishment, has happened even while the Salt has continued exceeding hot, and been kept in a Place, at the same time, which was very much heated by the Fire; so that I could not, with the utmost Care, keep the Water of the Air from uniting with the Salt. But there is yet another thing to be observed, in this wonderful Attraction of Water from the Air into a dry alkaline Salt, which, some Years ago, a good deal engaged my Attention. I wanted a very acrid, dry, fixed alkaline Salt, in order to demonstrate to some Persons, who would not believe, and even denied the Possibility of it, that there might be a Tincture produced in an Instant from that Salt, and pure Alcohol; a Truth which some famous chymical Authors have, in their Writings, mentioned as a Fiction. This Salt, then, rightly prepared, glowing hot, and as yet in Fusion, I poured into a very hot Brass Mortar, and with a very hot Brass Pestle rubbed it as fast as I possibly could, and as soon as ever it became a Powder, I put it up into a very hot and dry Glass Bottle, and immediately stopping the Mouth with a Cork, and a Piece of Bladder softened with Oil, secured it as close as I possibly could. The Consequence was this; when I came to it, the Experiment, though I had frequently before met with Success, yet the Event at that time would not answer. Surprised at this, I carefully examined every Circumstance that might produce this Variation, and discovered at last, that the Surface of the Salt was a little moistened by the Air in the Bottle; and that therefore this being already impregnated with Water, the Alcohol could not immediately act upon it.

Now, when I consider this, I am clearly convinced, that in so small a Portion of Air as can be contained in a Bottle, which will hold but three Pints of Water, there is Water enough to moisten an Ounce of Salt of Tartar, and to increase its Weight. And having repeated the Experiment with the same Success, I learnt at the same time, that the Water contained in that Portion of Air, which Water is about eight hundred and fifty times heavier than the common Air, must of consequence make up the greatest Part of the Weight which is statically discovered in the Air itself: For if one eight hundred and fiftieth Part of the common Air was Water, then the whole Weight of the Air would certainly be owing to Water alone, which floats in it; and the other Parts, contained in the aerial Mafs, would make nothing towards the Weight of it, and would not, perhaps, gravitate at all. Upon this Subject I had some Conversation

sation formerly with my Friend Mr. Henry Van Deventer, famous for his valuable Writings on Midwinty, who told me, he had observed the very same Thing.

If we consider all these Phænomena with Attention, we must hence infer one, two, or all three of the following Propositions. Either, first, the Air, in all still, close, and subterraneous Places, must be in a perpetual Motion, in order to be able to apply that little Quantity of Water, which is diffused through its whole Mass, to the Surface of the Salt of Tartar, so as to leave it there; for if a Cubic Foot of Air contains at the most $\frac{1}{12}$ of a Pound Troy Weight of Water, and communicates, within a Vessel close stoppt, this Water to the Salt, then it follows, that all the Air must so revolve about the Surface of the Salt, as that all its Parts may successively come in Contact with it, and thus deposite the Water they contain: Or else, secondly, we must conclude, that those Particles of Water, which at one time are dispersed throughout the whole Mass of Air, are at another time so moved through that Mass, as that they are perpetually and successively, sometimes in one Part of the aerial Space, and sometimes in another, till at last they all meet with that Salt which is placed within it: Or, in the third Place, we must acknowledge, that there is a true attractive Power betwixt a fiery, fixed Alkali, and Water; so that, like two Magnets, they reciprocally attract each other, in the same Manner as we read in *Sendiogius*, of an Alkali of the Earth, that attracts the celestial Dew, in order to Fertilization. If a mutual Attraction is the Cause of these Appearances, the attractive Power betwixt the Water of the Air and an alkaline Salt must extend to a considerable Distance, since a very little of the Salt will grow four times as heavy at it was at first, by means of the attracted Water; for an Ounce of Salt of Tartar, whilst it is converted into four Ounces of *Oil of Tartar per Deliquium*, must have drawn into it three Ounces of Water: But three Ounces of Water require at least two Cubic Feet and a half of Air to be diffused through it, in order to be attracted into that one Ounce of Salt; which Space, with respect to that one Ounce of Salt, is very great; but from all kinds of Experiments, it appears very probable, that all these three Causes concur, at the same time, in the Production of this Effect.

But nothing appears more extraordinary in this Affair, than that, whilst the Water is drawn into the Alkali from the Air, and thus makes *Oil of Tartar per Deliquium*, which in Weight is to Water as seven to five, but to Air as 1190 to 1, there should be found in it nothing of the aerial Elasticity; so that this Alkali thus separates the Water from elastic Air, and unites it to itself, but rejects intirely the aerial elastic Quality. Hence, therefore, it appears, that Air, free from Water, is very elastic; but on the contrary, when it is replete with watery Vapours, it proportionably loses somewhat of its proper Elasticity; and again, that by means of a great Quantity of fixed alkaline Salt produced on the Earth, a vast deal of Water may be drawn out of the Air.

In continued serene and very dry Weather, the Air becomes always more ponderous, the Atmosphere heavier, and the Water mounts higher in the Air; so that, in reality, there is never more Water in the Atmosphere than at that time, when, by reason of the Dryness here below, People generally imagine there is the least of all: But the Water then is far more widely distributed and dispersed; for the higher from the Earth the Water ascends in the Atmosphere, the greater are the Spaces into which it is diffused, and the farther, consequently, its Particles recede from each other; and then they exist separately, and do not immediately unite, nor afford any Moisture. But if the Barometer is very high, and at the same time thick and stinking Fogs appear, then the watery Particles almost always float below, along with gross, unctuous, and saline Exhalations; all which, at that time, are not equally mixed together. Again, when the Barometer is very low, and the Weather at the same time is very hot and cloudy, then the Water comes down to the lower Regions, but in an uniform Vapour, very moist, but not yet producing Rain. From these Observations it is manifest, that the Air, when loaded with abundance of Water, often appears very dry, bright, and perfectly clear; and that, on the other hand, when there is less Water in it, it may, by the Descent, Collection, and unequal Distribution of the Water, appear cloudy, dark, and very moist. And this is demonstrated evidently in Cucurbits, Alembics, and Glass Receivers, whilst Water is distilling in them: For if the Vessels are kept stoppt very close, whilst the Distillation is going forward, all appears bright and clear, and no cloudy Vapour is seen; but as soon as the Water in the Cucurbit, upon the Removal of the Alembic, begins to evaporate freely into the Air, the whole appears covered with watery and very thick Vapours, the equable Compressure being now removed.

But in the Summer Season, when the Weather is fair and very dry, and the Surface of the Earth has been for a considerable time parched with the Heat of the Sun, then not only the Water, but other Particles likewise less volatile, as the oily and saline, are, by the Power of the solar Rays, carried up into the Air, and fill that Part of it which lies nearest the Surface of the

Earth. And as long as these Exhalations are kept in Agitation by the Heat of the Sun, so long nothing of them appears to the Eye: But as soon as the solar Heat, which at Three in the Afternoon is the greatest, begins to remit, the Air soon after begins to grow cool, though the Earth, which retains the Heat communicated to it by the Sun a thousand times longer than the Air, being yet hot, continues to breathe out Exhalations; and hence there is collected a white, dense Vapour, which is cool above, but still continues warm below. This Vapour, therefore, appears first in Ditches, and watery or marshy Places; whence dispersing itself by Degrees, it covers the Face of the Earth in the Evening and Night-time, with a Cloud, consisting of Particles of this Sort, which in the Morning is again dissipated by the Heat of the rising Sun. And this is what we usually call Dew; which appears, from what is here said of its Production, to be a very compound Fluid; so that nothing material can be asserted concerning its Properties, which would under all Circumstances hold true: For since it is a Composition of all the Corpuscles of the Earth, which are rendered volatile by the solar Heat in Summer, exhaling and descending again, and blended and confounded together, it must doubtless appear, upon the least Consideration, to be a perfect Chaos. Moreover, in every particular Part of the Earth, it must be of a Nature intirely different, according to the various Sorts of the Bodies in the Place where it is produced. In Gravel-pits, for Instance, and in high, dry, healthy Grounds, of a large Extent, there is collected but a very small Quantity of this Vapour, and that almost intirely watery; whilst that which is collected about standing Waters, Fens, Morasses, fat bituminous Grounds, and Places abounding with the Exhalations of putrefied Fish and other Animals, is perfectly of a different Nature, and often pernicious to Mankind. It is no wonder, therefore, that the Chymists, in the artificial Resolution of Dew, have met with such contrary Principles, and written so differently upon the Subject, that you can scarcely find two of them that give the same Account of it. And as for those who expect to find the Spirit of Life, the universal Menstruum, the Mercury of the Philosophers, and the Nitre and Steel of *Sendiogius* in Dew, they scarcely seem to have read the Works of these Philosophers to any Purpose. That this, however, is a very sharp, saponaceous, pinguious Liquid, abounding with a good deal of Nourishment for Vegetables, I do not deny. A Dew too, collected in a certain Part of the Earth, has yielded, by Distillation, a Liquor that impressed upon Glass the lively Colours of the Rainbow, which could neither be removed by Friction, an alkaline Lixivium, or Aqua-fortis: And this Liquor was inflammable, like Spirit of Wine, as appears from the chymical Experiments related in the *Republic of Letters*, tom. i. p. 590. And again, distilled Dew, digested for the Space of eight Days in a gentle Heat, and by repeated Distillation rendered six times more subtil, is said to have broke three Glass Vessels, and to have remained perfectly insipid, though it was so very thin, that it resembled pure Spirit, *ibid.* 1708, p. 152. And farther, in the *Philosophical Transactions*, Dew is described as being like Butter, of a yellowish-white Colour, soft, melting by being rubbed upon the Hand, and growing dry and hardening by a moderate Heat, of a foetid Smell in the Winter, and, in the Spring particularly, produced in the Night-time in pretty large Lumps. But the Nature of Dew is likewise surprisingly various, according to the different Dispositions of the Weather, and according to the various and successive Changes of the Meteors in the Air; for hence it comes to pass, that the very minute Seeds of small Plants, and the invisible Eggs of the smallest Insects, are mixed with it, together with an infinite Number of other Things; which being all digested, fermented, putrefied, and distilled together, yield, at different times, Principles of very different Natures, and hence lead the Chymists into very extraordinary Opinions. The principal Part, therefore, of Dew, is Water; the rest, because of their great Variety, cannot possibly be determined.

That the Clouds are produced in the Air, from Water only, scarce any body doubts; but Water, every where equally disposed, is transparent. Clouds, therefore, are collected from what is beginning to be Water, the Parts of which are circumvolved among one another with an unequal Motion, neither resting nor moving equally. If the Water that is floating about in the Air mounts higher and higher, its Particles at last obtain a Situation so far above the Earth, that they are not any longer much united together, but receding from each other, they do not then constitute Water, but only the Elements of it: But when these Elements of Water come to descend again from the upper Regions, and are contracted into smaller Spaces, they associate together, and become a kind of Water, then forming Clouds. The higher therefore the Water ascends in the Air, the more serene and dry the Weather will be, and the freer from Clouds; and the contrary. But Water is carried up to a very considerable Height in the Air; for in Carniola, in the Neighbourhood of Venice, there are Mountains 10274 geometrical Feet high, on the Tops of which there are Indications of Moisture, *Act. Lips.* 1689. p. 552. And on the highest

highest Tops of those Mountains, Nature presents to our View perpetual Snows; a certain Proof of the Elevation of Water to such Heights. And even over Teneriff, one of the highest Mountains in the World, there constantly, about Noon, hang Fogs, or little white Clouds, which are daily resolved into Water, which flows in such Plenty down the Mountains, that it supplies the Place of Showers, and waters the whole Island without Rain, *Art. Lips.* 1691, p. 98. We are certain, therefore, that Water ascends to such a Height: But had we sufficient Observations to confirm the Account Maignanus of Thoulouse gives, in his Treatise of *Perspective*, p. 93, of the wonderful Phenomenon which he says he had observed, the Ascent of the Water in the Atmosphere would be found to be abundantly higher: For he tells us, that in a very clear Night, and that at Midnight too, there appeared, in the Month of August, an exceeding bright little Cloud, which spread itself almost as far as the Zenith, or vertical Part of the Heavens; and says, that Riccius observed the same Thing in the Neighbourhood of Rome: And, from these Observations, he infers, that Clouds may be elevated beyond the Projection of the Earth's Shadow. But this Projection, if astronomically computed from the given Time and Place of the appearing Cloud, would make it at a prodigious Distance from the Earth; and hence, perhaps, that Appearance was rather to be ascribed to some other unknown Cause, residing in the upper Regions of the Air, such a one as forms the *Aurora Boreales*, or Northern Lights; since, on the Tops of the highest Mountains there are rarely observed any Clouds; but, on the contrary, to a Spectator placed there, they appear below him, towards the Valleys.

The lower Air being full of Water, the Elements thereof begin to unite, and, by this Association, to form small Drops, which falling down, produce a light Rain, generally thick, but descending with no great Force: For the less these Drops are, the greater are their Surfaces with respect to the Quantity of Water they contain, and consequently are the less inclinable to descend with Velocity through the resisting Air.

But when the Water in the upper Regions of the Atmosphere is collected together, and becomes heavier, and begins to descend, then, by gradually falling down, it continually unites to it the other Particles of Water which it meets with in its Fall. By this means are produced those very large Drops which in Europe have been observed of three Lines in Diameter, but among the Negroes, a whole Inch, *Art. Lips. Suppl.* i. 425; which Drops, containing a great Weight of Water under a Surface small in Proportion, rush more violently through the Air, and fall to the Earth with a considerable Force. The higher the Place is from which they fall, the larger the Drops are, and so *vice versa*; for it has been always observed, that the Rain, in the upper Part of a high Mountain, is the smallest; but that, as it gradually descends, larger Drops are formed, till at the Foot of the Mountain it produces the largest of all. Hence, the hardest Showers happen in Summer, when the Water, being driven rapidly downwards on a sudden, Thunder, Lightning, and Tempests are caused. And hence also, the Drops of Showers, in Summer-time, are usually larger than they are in Winter. Lastly, Observation has made it very certain, that Rain, in every Part of the Atmosphere, is there the smallest where it is first produced.

But when the Air, abounding with Water, and growing cold during the Night-time, is carried against the upper Parts of high Mountains, especially if they are disposed in a long Range, then this cold and dense Mass of Bodies, particularly towards the North and East, during the first Part of the Night, and towards the South and West after Midnight, stops, cools, and unites this Water of the Air, and converts it into a real Fluid, which gives Rise to a great many little Rills, which in the highest Part of the Mountain are small, but, as they descend, and are joined together, become larger, and by this Means produce a perpetual Trickling down the Mountain, and afford an incredible Quantity of Water, which runs down, and produces various Rivulets, according to the various Channels of the Mountain or the Lands about it; and when these, by subterraneous Passages, descend from a high Part of the Mountain to any Part of the Declivities, and there burst through Outlets, and so discharge their Stream, they then yield a pure Water, either falling down, or bubbling up from a Spring. And here it is very easy to conceive, that, according to the different Height of the Springs, in respect to the Outlets, the playing of the Fountains must be various. And hence, likewise, it is easy to account for the Variety of Springs, both in the Quantity of Water and every other Circumstance. And hence again it appears farther, how it comes to pass that there are no Springs but where there are pretty high Mountains; and that wheresoever these are, Springs are also observed: The Truth of which appears no where more evidently, than in the fortunate Valley of Cassimire, mentioned by Bernier in his *Description of the Empire of the Great Mogul*.

This Account of Springs may possibly be right with respect to some; but I can by no means agree with the illustrious Author, that this is the Origin of all Springs. An easy Computation will

make the contrary evidently appear. Boerhaave has shewed that the Waters exhaled from the Earth in one Year, would cover the Surface thereof to about thirty Inches high. And if this is all, the Surface of the whole World would not be sufficient to supply the Thames, Trent, and Severn, with the Quantities of Water they yearly carry into the Ocean.

Again, wheresoever there are such Mountains and Springs, there the Water, after running down from the Mountains, or perpetually bubbling from the Springs, is discharged into Rills or little Currents, continually flowing; but, for the most Part, with a gentle Course at their Origins. But, when different Currents join their Courses together, the Stream becomes stronger; and being continually augmented by Rivulets, which discharge themselves into it, in a short time a River is formed. This again, not long after, being still, as it passes, augmented in Strength and Quantity by the Accession of other Streams, forms a River still flowing with a more rapid Course, always tending from the higher to the lower Ground, and at last discharging itself into the Sea, from which it never returns again; whose Contents, however, in the whole, are by this Means never increased, inasmuch, as what it receives by the Discharge of the Rivers into it, it gives up again continually by Exhalation. Sometimes it happens, also, that the rapid Torrents of Rivers sink down into subterraneous Passages, disappear, and rise up again in some other Place. Hence, in flat Countries, where there are no Mountains or Springs, no Rivers are formed; and for this Reason the Supreme Wisdom has thus distributed Mountains throughout the whole Earth, that they might be beneficial to Mankind, by producing these Collections of Water. And hence, lastly, all the World over, the Courses of Rivers correspond with the Order of the adjacent Mountains. Upon this Subject, let me refer you to the Discoveries of the incomparable Halley, in the *British Philosophical Transactions*, which he truly has a Right to the Merit of. All these Things it concerns us to be particularly acquainted with, who are prosecuting the Study of Chymistry, in which there is almost a perpetual Necessity of considering the Variety of the Qualities of Air and Water.

But by all that has been hitherto said, it does not appear certainly how great the utmost Height is, to which Water can ascend in the Atmosphere: But this, at least, we are absolutely sure of, that on the Top of the highest Mountain on the Earth, there never is any Air without some Water in it, since the Top is always found moistened with humid Vapours. And hence it is evident, likewise, that it is not possible, by any Manner of Art, to make Use of Air in chymical Operations, void of Water. Perhaps, indeed, from a given Quantity of Air, pent up very close in a dry Glass Vessel, all the Water may be drawn out: For if some Salt of Tartar, coming as hot as possible from the Fire, is reduced to a fine Powder, and thrown very dry into this Glass Vessel, and the Mouth of it is immediately stopp'd close, then this exceeding dry Alkali will attract into it all the Water that is contained in the included Air: But then no-body can apply this Air to any chymical Operations, because, as soon as ever the Vessel is opened, this dry Portion of Air mixes again with the common Atmosphere, and is immediately moistened by the Water with which it was filled.

But farther, we are assured, from undeniable Observations, that the higher the Water is carried into the Air, the more its Parts are disunited, and dispersed through wider Spaces, and at the same time grow colder: For, upon Examination, it has been constantly found, that in every Part of the habitable World, the Heat is greatest at the Surface of the Earth; and that, at the very Summits of the highest Mountains, a freezing Cold preserves a perpetual Snow. This is true, even at the Equator, and in the Torrid Zones: So that there is not, in the hottest Part of the Earth, a Mountain very high, whose Top is not exceeding cold: And the Cold even increases gradually, as you ascend from the Foot to the Summit of the Mountain, in such a Manner, that the Increment of Cold is always in proportion to the Increase of Height. This is an Observation that will always hold true, if all other Circumstances are alike. When Water, therefore, ascends to such a Height in the Air, that it meets with a freezing Cold, it must necessarily be congealed into Ice, unless its Elements are so separated, that none of them touch one another; for so long as the Particles of Water are there dispersed from one another, so long there will be no Appearance of Ice: But, as soon as ever, in this high and cold Region of the Air, these Elements begin to come into mutual Contact, then they begin immediately to be congealed into little icy Globules, which float up and down through the clear Air, and falling upon the Surfaces of the Bodies they meet with in that Region, produce a very fine Hoar-frost, but otherwise are scarcely perceptible. In the Atmosphere, therefore, there is an Orbit concentric to the Earth, in which the Water of the Air, when it is carried up to that Height, is always frozen if it is united together. And the higher it is elevated above this Orbit, so much the sooner it will be frozen. But it is not, however, improbable, that when the Water arrives to such a Height, its Particles will be so much the less

united, and therefore will seldom be congealed; but, on the contrary, will float about separately, till some other Cause shall happen to unite them together, and by this means form them into Ice.

When the Water, therefore, in this Orbit is congealed, then by an Union of a great Weight of Water under a less Surface it must immediately become heavier; by which means it will of consequence begin to fall downwards, and thus descending into Spaces that are smaller, and are more replete with Water, will associate to itself other watery Particles, and so gradually form larger icy Concretions, which will now put on the Appearance of Snow, or small Hail. But as there may be a great Number of Causes, and those too perfectly different from each other, by Means of which, the Elements of Water that were before scattered in the upper Air, may on a sudden, and in a very large Quantity, be brought into Contact with one another in the icy Region of the Atmosphere, hence we readily apprehend, that considerable Pieces of Ice may in a very short time be produced.

But these icy Masses may be collected together; and when this happens, there will appear little Clouds high in the Air, and white, because of the Reflection of the Sun; which suddenly falling downwards with a considerable Velocity, seem to increase very fast in their Magnitude, and rushing from on high upon other Clouds of the same kind, by their Collision produce Thunder, Lightnings, Tempests, Showers of Rain and Hail, which are always the more violent, the higher the Place is from which they fall. And hence, in Summer-time, when the Weather has been long clear, the lower Air very dry, the Atmosphere heavy, and the Water therefore in it carried up to a very great Height, then the Atmosphere being on a sudden rendered lighter, the Phenomena just mentioned usually succeed, especially betwixt the Tropics, where, if a little white Cloud appears very high in the Air, it is a Sign that a terrible Storm is at hand. And it is exceedingly probable, that the Hail, which is always formed in the upper and colder Regions of the Air, as it descends by its Weight into those that are lower and warmer, is there dissolved by Heat, and produces those great Showers of Rain which accompany, follow, and put an End to the Thunder and Lightnings. But if the Hail happens to be so swiftly carried through the Air, as that, by reason of its quick Descent, it cannot be melted, it then falls to the Earth in form of icy Concretions, which often, by their Size, Weight and Motion, do a great deal of Mischief. In the Abridgment of the *Philosophical Transactions*, N. ii. p. 144. we have an Account of some of these that weighed a full Pound.

This certainly we are assured of, by Observation, that Clouds of a very white Colour, to which there presently succeeds a pitchy Blackness, terrible Thunder, Lightning, and Tempests, are always accompanied with Hail. Hence it may be questioned, whether, for producing even the greatest Thunders and Lightnings, Nitre and Sulphur are always necessary; since the very violent Collision of hard Ice suffices, perhaps, for the striking out a vast Quantity of Fire; doubtless it is sufficient for producing loud Peals of Thunder; especially if we likewise consider, that the Fire of the Sun, by its Heat, Reflection and Refraction, can act in infinitely different Ways upon the aqueous congealed Matter we are here speaking of. If this then be taken into Consideration, what Variety of Colours, what Diversity of Figures, and what Difference of Dimensions may we not suppose to happen in this aerial Ice?

This Account of Thunder and Lightning without Nitre and Sulphur seems more curious than true.

But amongst the principal Causes that are concerned in the sudden Production of such extraordinary and various Phenomena in the Atmosphere, which before was calm and serene, we may reckon the Diminution of its Weight; for the Water always begins spontaneously to separate itself from the Air when the Air becomes lighter; and thus the Water discovers itself, though before it did not appear. In the next Place, we apprehend, that the Bodies of Air which are driven from opposite Quarters, often strike against one another, and by this Collision suddenly unite together the Elements, which before were separate. Something likewise may perhaps be owing to the various Aspects of the Planets; not to mention the Efficacy of the Winds, and the Vicissitudes of Heat and Cold towards these Productions. Every one of which, separately, or all of them together, may easily enough bring about the Effects we have mentioned, with many others.

On the other Hand, if we examine into the Causes which incorporate Water with the Air, and elevate it, we shall find a great many which contribute to it. The principal, however, of these is the Sun, the Direction of whose Rays upon the Water, the nearer they approach to a Perpendicular, the more Water they always elevate into the Air. Upon which Head consult the Observations of Dr. Halley, which I have already cited in their proper Place. Another Cause greatly assisting the foregoing, is the subterraneous Fire, which is always in Action, never at Rest. For it has been evinced by Observations, that

in Mines sunk lowest, or in the deepest Wells, you first come to a Depth in which Water never freezes, but which continues almost always of the same Heat, without any Alteration, as the celebrated Academy at Paris observed long ago, in the Well of their Observatory; but as you descend lower, the Heat begins to grow greater, increasing gradually more and more, in Proportion to the Depth, till at last it becomes so suffocating, that unless it be tempered by the Coolness of running Water, and the Air that is thence produced, it suffocates the Miners. And we see also that in Winter, when the Water is covered with Ice, and the Earth with a hard frozen Crust, if the Ice is broke, or the Earth is opened, both the Water and the Earth smoke with Heat. Nor had the Philosophers, whom I have formerly heard discoursing on this Subject, any Grounds for asserting that this was all a Fiction, and that it was impossible that Fire should thus exist in the Bosom of the Earth, because it can neither be supplied with a proper Pabulum, or be agitated by Air; for certainly we ought to consider, that by the sole Attrition of the condensed Air, in the Bowels of the Earth, this Fire may be produced and preserved without any other Air, or any Pabulum. For should the Air, at any vast Depths under Ground, be condensed six hundred times more than the common Air, what Effects would it not be capable of producing? Incredible ones without Dispute, since Authors worthy of Credit have declared, that Air forcibly compressed in an Iron Tube has there grown warm. It is not to be questioned, therefore, but that, in the deepest Parts of the Earth, where the Bodies are compressed by the prodigious Weight of those which lie above them, the smallest Attrition must produce the greatest Heat. And hence, as the Action of this Fire is perpetual, so likewise must be the Effect of it too, that is, a continual Exhalation of Water. *The Existence of this subterraneous Fire seems to want farther Evidence, notwithstanding Boerhaave so little disputes it.*

Regard is also to be had to the very great and constantly repeated Effects of common Fires, made use of by Mankind in every Part of the inhabited World, in the Dissipation of Water, whether alone, or contained in Animals, Vegetables, or Fossils; for, doubtless, if any one computes the Measure of this exhaling Water, which such Fire carries up, and distributes through the Air, he will find it to be incredibly great.

Again, the Force of a very sharp Frost carries off from Ice every Moment a surprising Quantity of Waters, so that in a little time the Mass is consumed, being dispersed into the Air by the Cold alone, as the excellent Mr. Boyle plainly discovered by an Experiment made with the Balance. But daily Observation certainly evinces, that by the piercing Cold of a very severe Winter, all Kinds of Bodies are strangely worn away, diminished, consumed, and dispersed through the Air.

It seems probable also, that every physical Cause, which is capable of so disuniting the Particles of Water from one another, as to make every one of them exist separately, will also, by this means, make those Particles immediately acquire so large a Surface, in Proportion to their very small Weight, that they will be able to float in the Air. And indeed, this Solution of Bodies into their smallest Parts appears at last so to increase their Surfaces, in respect to their Quantity of Matter, that in every Division of them, this Aptitude to swim in a lighter Liquid is very much augmented, as the Geometricians have long ago observed. But it is farther discovered by physical Observations, that, besides the Gravity of Bodies, there is likewise a certain repelling Force, which tends to prevent the Contact of the Surfaces of different Bodies, and which, consequently, is always increased in Proportion to the Augmentation of their Surfaces. Hence it follows, that Bodies very minutely divided, descend, on this Account, with more Difficulty by the Force of their Gravity, than they would do if they were acted upon by the Law of Gravitation only. And the Action of this second Property of Bodies seems particularly to prevent the immediate Descent of all the Particles of Water out of the Air that surrounds the Earth.

It seems to be the Effect of the very same Property, that the Particles of Water may be expanded round the Air contained in them, and thus form that spherical Body which we call a Bubble. And besides, any Heat or expanding Spirit whatever, while perhaps it acts in the same Manner, may, as well as Air, be always at last capable of rendering Water lighter; but when afterwards, the Water being so divided into very light spherical Bubbles, is carried upwards, then does every Bubble expand itself more and more continually, and so is able to ascend for a long time, and to remain aloft in the Atmosphere. And hence it is manifest, that the Particles of Water may ascend to a great Height. See Halley, in the *Philosophical Transactions*, 1692. N. excii. p. 468, &c.

But in the last Place, there is no Cause whatever which carries up such a Quantity of Water from the Earth into the Air as the Wind, as the same admirable Halley has elegantly demonstrated, and as I myself have learned from various Experiments, not without Astonishment; for having exposed a Copper Cylinder full of Water to the Wind

in stormy Weather, I was surpris'd at the incredible Quantity of Water carried off in a little time; whereas, when the Wind was still, which happened presently after, but a very little Water exhaled, though the Heat of the Weather was still the same. For this Reason it seems ordered, that high Winds should follow large Quantities of Rain, that, by thus agitating the falling Water, and carrying it up again into the Air, they may prevent its stagnating and putrefying, and by this Means proving destructive to the vegetable Kingdom. All these Causes, therefore, when they conspire together, are sufficiently capable of dissipating Water into the Air, and there keeping it in continual Motion.

If we consider now the Action of this elastic Air, replete with Water, on the Body of a Man, Fossil, or Vegetable, we shall find it bring about many and very wonderful Changes; for if we reflect upon its singular Fineness, which renders it exceedingly penetrating, and that it is perpetually insinuating itself into every little void Space; and if at the same time we take into Consideration its constant Mobility, by which it is always kept vigorous and active, it is manifest that these Qualities being determined upon Bodies by the Force of Gravity, are capable of producing an infinite Number of Effects. But the Water that is distributed through the Air will also be still more efficacious, being itself agitated by the Motion of the Air, and by this Means it will more readily dissolve the Salts, and the saline and saponaceous Substances of the Bodies it is applied to. And as there are many such Parts in most Bodies, and those Parts too are the principal Instruments of their Action, hence we easily apprehend, that, by means of the Application of the Air, the proper Virtues of Bodies may be excited to Action, so far as they depend upon their Salts and Soaps. In the mean time, the principal Alteration wrought upon Bodies by the Water of the Air, is its rendering fixed Salts, and other compound Bodies, volatile. This Phenomenon was observed by all the Chymists of old, and is constantly found to hold true, that is, all native Salts, if they are rendered exceeding dry by an open Fire, and then pounded and exposed to the Air in a Glass Basin, will there, by means of the Water in the Air, be converted into a Liquid, and from the perfectly saline Part there will be separated an Earth, which did not appear before. If this saline Liquor, thus freed from this Earth, is again thoroughly dried by a clear Fire, and if afterwards the Salt is beaten, and again dissolved in the Air, it will deposite some more Earth. And if, by several Repetitions of this Solution and Inspissation, you thus remove all the Earth that is every time produced, you will at last procure an incredible Quantity; but at the same time you will have nothing else remaining; for that other Principle, which before, in Conjunction with the Earth, constituted the Salt, is, by this repeated Action of the Water of the Air so disengaged from its Earth with which it was incorporated, that now, existing separately, it becomes perfectly volatile, is dissipated in the Air, nor does ever again come within the Cognizance of our Senses. Nor has the Industry of the Chymists discovered this wonderful Metamorphosis in native Salts alone, but likewise in the fixed Salts prepared by Fire from Vegetables; for by this tedious Operation, these Salts are likewise resolved into an Earth, which fixes them, and a Principle perfectly volatile, which is intimately united with it. And these Resolutions, which are very singular and wonderful, can be performed by no other Means than this very subtle Application of the Water distributed in the Air, which Art, formerly held a Secret, being now more practised, has let abundance of Light into the Art of Chymistry; though at the same time it has too often proved of Disservice to the Chymists, who being quite tired out with the Tedioufness of the Work, have lost, in the End, both their Labour and the Thing they were in search of. But again, whenever the Air abounds with Water, and is, at the same time, agitated by Heat or Wind, then this Water will relax the Parts of Bodies so suddenly and so efficaciously, as must surprise every one who is not acquainted with these Subjects. But by this Means, likewise, many Bodies are macerated, and others are thrown into Fermentation. And as for the Putrefaction of the Bodies, certainly it is scarcely more promoted by any other Cause than the Humidity of a hot Air, which, in a very little time, resolves the Bodies, which are that Way disposed, into a putrid funous Matter. And for this Reason, the Physicians long ago asserted, that the Plague itself is generated among Animals, from an Air that has been both very moist and warm for a considerable time. In short, therefore, since it so dissolves Salts and saponaceous and saline Substances, elevates them all together, disperses them about, drives them against, and makes them penetrate into what Bodies they meet with, it is manifest, that, by this Means, it must apply the Forces of some Bodies to others, and thus bring about such Actions between Bodies, as hardly ever happen from other Causes; for what other Cause could produce the fetid Butter-like Dew, described in the *Abridgment of the Philosophical Transactions*, Tom. ii. 141? Or what else could cause the salt Rain, observed at Sea, *Journal des Sav.* 1683. 435?

Thus far we have sufficiently considered the Air, with respect to its Elasticity, and the Fire and Water contained in it. We

are now to examine it in another View. Let us then carefully enquire what other Corpufcles, besides those we have specified, float perpetually in this Air; but this is a Field of Enquiry which is boundless: For as the Earth, considered in its whole Extent, receives every thing that falls out of the Air, so, on the other Hand, the Air receives every thing again from the Earth; and thus, between these two Elements, a perpetual Revolution and Distillation of all things is carried on.

In the first Place, then, all the Parts of Vegetables perpetually changing, are dispersed throughout the Atmosphere. That the Spirits of Vegetables do always and every where exhale, and fill the Air with a continual Fragrance, nobody can dispute. And it is very certain, that the Odour of Plants dispersed through vast Tracts of Air, inform Mariners, before they discover Land, of their Approach to the Shore. It is farther known, that these Spirits spontaneously exhale out of the Bodies, in which they are generated, and are scarcely to be confined and preserved, except in Vessels stopped very close. Hence, then, it follows, that whatever odoriferous Spirits are at any time by Nature produced in Plants, all these are, at last, contained in the Air. And for this Reason it is not at all to be wondered, that these Spirits should afterwards return with the Water of the Air into the Bodies destined to receive them, and that the Air should thus yield up to the Earth what it originally received from it. In fact, we find nothing in Nature less imitable by Art, than the fragrant Spirits peculiar to each Plant. But these, when they are once freed from the Tenacity of the Sulphur or Oil that entangles and retains them, always, from their own proper Nature, become volatile, and are dispersed through the Atmosphere. How various, then, must be the Effects that are hence produced; and how wonderful the grand *Metempsychosis* or Transmigration that is, by this Means, brought about!

But again, when we consider that Vegetables, duly prepared by a proper Fermentation, yield a large Quantity of vinous Spirits, that are continually exhaling, must we not hence conceive, that all those Spirits which have ever been produced from any fermented Vegetable whatever, over the whole Face of the Earth, have at last exhaled into the Air? And in this View we now look upon this Air again as a Cloud, as it were, of Spirits of Wine. In Reality, whether Wine be drank by Men, or any other Animals, be outwardly applied by Way of Fomentation, or made use of either in Cookery or Physic, certainly all its Spirits must sooner or later exhale into the Air, there remain for some time, and thence, at a convenient Season, return to the Earth again. What Wonder, therefore, if Fermentation, which is the productive Cause of Wine, should never produce Wine, without the free Admission of the external Air. May it not, possibly, return back again to Places and Bodies the Spirits which it had before received; and must it not, for this Reason, be always called in to our Assistance, when they are to be generated again?

And finally, all those Parts of Vegetables, which the Fire divides into exceeding minute Corpufcles, and converts into a volatile Vapour, the Chymists have likewise called Spirits; but these are also elevated into the Air, and are continually floating about in it. As the Water of Vegetables, therefore, so all these Kinds of Spirits are perpetually tending upwards into the Atmosphere.

But farther, it is certain, that the native Oils of Vegetables do, in time, by the natural Heat of the Air, intirely evaporate; and that whether they remain in the Vegetable, or spontaneously exude out of it, or are forced out by Pressure; for there are but few Sorts of Wood, in which their Oils are so united with their proper Earth, that they are able to remain for Ages together in the open Air. And as for the Oils of Vegetables, which Chymistry draws from them by Fire, whether this be done with Water or without, these are far more volatile, and sooner fly off. Thus then they form pinguious Exhalations in the Atmosphere, which are very well disposed both to take fire, and to support it; for as these oleaginous Particles are now so minutely divided, that they nearly resemble Alcohol while they float in the Air, being first heated by the Attrition of the Clouds, they may be excited into a Flame by Fire, which may be produced in the Air, all these Oils, therefore, which ever were contained in Vegetables, a very few perhaps excepted, are dispersed into the aerial Chaos; whence, as Water and Spirits do, they return in their time, impregnate the Earth with a pinguious moistening Dew, and by thus circulating backwards and forwards, bring perpetually fresh prolific Supplies, and being deposited for a short time, return into the Air again. All this now happens principally in very hot Weather. For if a long Drought, with a very great Heat, has carried upwards both the Water and the pinguious Corpufcles of the Earth, then the first Fires that happen aloft with Thunder and Lightning, send down a Rain which is very different from that pure Snow that falls in a sharp Frost, and is far more acrid and more disposed to Froth. And hence Summer Rain, or Rain produced in hot Weather, is always fruitful; whereas that in cold is scarcely endued with any such Quality.

I must observe, that Spirit of Nitre rendered extremely strong and volatile, when mixed with some aromatic Oils, as that of Cloves, will explode with great Violence, and form a Kind of artificial Lightning. How far, therefore, the aromatic Exhalations from Vegetables may, by mixing with the Acid of the Air, set it on fire, and be concerned in making Thunder and Lightning, I leave to the Determination of Philosophers.

If we consider now the native, acid, austere, saponaceous Salts of Plants, and those which approach the Nature of an Alkali, which are procured by Crystallization, Fermentation, Putrefaction, and Combustion, we shall find, that all these do, sooner or later, disappear, not one of them excepted; since all these Bodies, when they are freed from their fixing Earth, ascend into the Air.

Even that very Earth too, which furnishes a fixed Element to Plants, by being reduced into small Particles, acquires such a Disposition, that it flies off, and is carried aloft: For Soot, collected at the very Top of a Chimney, from the volatile Smoke of a burnt Vegetable, yields, by a chymical Distillation, a remarkable Quantity of pure Earth. Hence, therefore, we are assured, that Smoke, which floats at Liberty through the Air, carries along with it real Earth, mounts with it aloft, and widely disperses it through the Air. Not to mention the Winds, which sweep away the Egyptian and Lybian Sands in Waves, as it were, through the Air, and carry the Ashes of Mount Ætna to prodigious Distances: Farther Instances of this are the Sparks of Vesuvius, scattered above a hundred Miles through the Air, *Phil. Trans. Abr. tom. ii. 142.* Ivy-berries, dispersed over a vast Tract of Land, *ibid. 144.* Small Fish, *ibid.* or the seminal Dust of Vegetables, *Phil. Trans. 168. p. 911.* Hence, then, from Observations it is clear, that all the Elements of Vegetables may be carried and intermixed with the Air.

But it is likewise certain, that Parts of Plants, and those pretty considerable ones, are carried into the Air to an incredible Height. Consider the Seeds of many Plants, which are carried up to the Tops of the highest Towers, and there, as is daily seen, if they meet with a very little Earth, propagate their Species. The celebrated Tournefort has demonstrated, from Observations, that the Fungusses, which are almost all feminiferous, by Means of the Air, disperse their invisible Seeds all about, which meeting with a proper Soil, thrive and spring abundantly. Mosses, likewise, and the mucilaginous and capillary Plants, as also the *Epiphyllosphermaphoræ*, or those which bear their Seeds upon their Leaves, scatter and disperse their Seeds to very distant Places. Even the small seminal Dust of the Male-Willow, being shaken from the Apices of the Flowers, and carried by the Winds into Places remote from those Trees, and afterwards, when the Wind was down, falling out of the Air, has been taken, by Persons unacquainted with these Things, for Flower of Sulphur, and afterwards believed, by the credulous Vulgar, to be a Shower of Brimstone, *Vide Phil. Transact. Abr. tom. 3.* And if such a small Dust should happen to be of a remarkable red Colour, why should not the same Vulgar, for the same Reason, have asserted, that it had rained Blood? There were Ashes thrown out of a Vulcano, and carried by the Wind, in the Year 1633, the Space of one hundred Miles, *Phil. Trans. N. xxi. p. 377.* But these are Things not to be wondered at, since that excellent Philosopher, Mariotte, in his *Treatise of the Motion of Waters*, p. 334, observed in a Cloud that poured forth a Shower of Hail, that the Air had carried this Cloud for fifty French Miles. If we reflect, therefore, upon these Things, we must believe, that there are a vast Number of surprizing Phenomena in the Air, and produced by it; all which are intirely owing to a Mixture of vegetable Substances that are distributed through it.

If, in the next Place, we enquire whether the Parts of Animals are contained also in the Air, we shall find there is a great Quantity of exhaling Spirits, and those wholly peculiar to every Animal, and distinguished among Physicians by the Name of the *perspirable Matter of Santorius*, that are continually dissipated and carried into the Air from living Animals, and adhere to other Bodies; and by these Spirits it is that Dogs, which pursue by Scent, distinguish so accurately the Animals from which they exhale, and follow them over large Tracts of Land. And how full the Air is frequently of Effluvia, exhaling from Animals, appears evident from the Infection too often observable in contagious Distempers.

The Excrements continually discharged by every Kind of Animals, are also, in so short a time, dissipated and disappear, that we are hence convinced, that the whole Quantity of excrementitious Matter will be always dispersed into the Air, hardly leaving so much as the lightest Dust behind it. In the hotter Countries, the Dung of Animals, being exposed to the open Air, becomes perfectly volatile by the Heat of one single Day: And even in our own Country, which is not so hot, the very Dung-hills are quickly consumed. And as for Urine, how quickly does that spontaneously become volatile, and exhale?

But there is something in this Affair still more remarkable: For does not an Intire Whale, the largest of Animals, when in hot Weather it is by the Sea thrown dead upon the Shore, quick-

ly infect the Places, to a great Distance about it, with a pestiferous Stench? And is not the whole of it resolved into volatile infectious Particles, so that at last some whitish Bones only remain, all the rest of the entire Mass being rendered volatile, and dispersed in the Air? What vast Numbers of Carcasses of Elephants, Camels, Horses, and of almost all other Animals, as well as human Bodies, that are the Carnage of War, remain from time to time uninterr'd, and are resolved into Putrefaction, become volatile, and dissipate almost all their Elements into the Air? Hence, therefore, it follows, that Bodies of Animals are, from their own natural Disposition, as much intombed in the Air as in the Earth; and those very Bodies, likewise, which are buried in the Earth, are not then preyed upon by the Worms, but are soon converted into a very light volatile Matter, which afterwards easily exhales into the Air out of the Earth itself. All the corporeal Matter, therefore, that has ever entered into the Composition of the Bodies of living Creatures, has been carried up into the Air, with this Difference only, that if the Bodies were burnt, this was brought about immediately; if left to rot in the Fields, more slowly; and still in a longer time, if they were interred: But yet, even in every Case, they have in time exhale away. What wonder, therefore, if, from the Air, there should be returned a Matter of the same Nature or Kind with the Food of the former Animals, which is capable of affording a proper Nourishment to the Bodies, that are by this Means to spring up afterwards?

But there is yet another Thing upon this Subject, which will be worth while to take under Consideration, as the right understanding of it will keep us clear of many Mistakes. I assert then, that the very Eggs, impregnated with the fruitful Offspring of their respective Animals, are carried into the Air. For the excellent Redi has demonstrated, that all Insects, without Exception, are generated by the Copulation of Male and Female. Leeuwenhoeck has proved, that the Seed of the Male lodges the first Embryo in the Egg of the Female. And Boyle has made it appear, that pregnant Eggs will not exclude their Young, except they are in the open and fresh Air. Being furnished, then, with these Observations, I purposely took a Piece of Flesh, which had been kept a pretty while in boiling Alcohol, and was afterwards rubbed over with some bright Oil of Turpentine, and fastening it to a long small Thread, hung it up in a moist warm Air, in a Place where it was imagined there were no Animalcula, and the Consequence was, that in a little time after the suspended Flesh was full of living Maggots, which were devouring whatever of the succulent Parts remained therein. In this Case, then, the Eggs, from which these Animalcula were produced, could not possibly come at the Flesh, unless they were conveyed to it by the Air, in which it was suspended. How much do the Husbandmen experience the Truth of this to their Detriment, when, in a warm Spring, certain Winds very suddenly infect the Trees with numberless Vermin, which in an Instant, as it were, are produced from their invisible Eggs? But give me Leave to mention one Thing farther, which is still more remarkable; and that is, the Rains that frequently happen among the Negroes, which strike a Man with such a sudden Chilness, that it makes him shudder. These Rains fall in Drops, of an Inch Diameter, which, if they come upon the Skin, eat into it; but, if they lodge on any Garments, produce living Worms and Moths, *Act. Lips. Suppl. tom. i. p. 425.* Many other Things of this Kind might be here taken notice of; but these may suffice, to let the Chymists understand that the new and wonderful Animalcula, which are oftentimes produced in Bodies, and even, perhaps, while they are at work upon them, owe their Being intirely to little Eggs, which are thus sustained in the liquid Air, and not to the Efficacy of any chymical Substance or Operations. Let them, therefore, be always mindful of the Nature of the Air, and its wonderful Fecundity, before they deduce the Origin of such Appearances from any other Cause. But the Knowledge of these Things, at the same time, is not less necessary and advantageous to the Physician and Natural Philosopher.

Let us now proceed to Fossils; for Fossils are likewise discoverable in the Air. For all Fossil Salts, however fixed, at last fly off into the Air, if they are dissolved in Water (especially in that which they attract from the Air) and are afterwards digested for a long time in a putrefying Heat, and are then distilled with a great Degree of Fire, and have their fixed Residuum calcined with a strong open Fire, and are then dissolved in the Air again. This is a Truth which a great Chymist communicated to the World more than an hundred Years ago. Not to mention the Distillation of these Salts, with Sand, Bole, Brickdust, Potters and Tobacco-pipe Clay, performed with the intensest Heat. Do not the Chymists, every Year, convert, by this Method, many thousand Pounds Weight of such Salts into acid volatile Fumes, which they call Spirits? And does not every such chymical Operation infect the very Air? And does not this Air destroy the Bodies that are exposed to it? The single and simple Mixture of Oil of Vitriol, Oil of Alum, or of Oil of Sulphur by the Bell, with Nitre, Sea Salt, or Sal Gem, converts in an Instant those very fixed Salts into Fumes,

Fumes, so volatile that they can hardly be confined, with which the Air is in a short Time so strongly impregnated, as to carry those Salts to great Distances all around. But infinite are the Methods by which the same Thing is effected. Before the industrious Glauber's Time, indeed, this admirable Method of thus changing Salts was not discovered. But who will pretend to determine, how many Methods lie hid in Nature, even at this Day, by which the like Conversion from a fixed to a volatile Matter may be brought about? The Vapours about Mines, which are often so fatal, that no living Creature can breathe in them with Safety, sufficiently prove, that Nature herself thus disperses Salts through the Air, and consequently has secret Methods which we are not acquainted with, for performing the very same Operations. In the mean Time, however, it is true, that this happens only in certain Parts of the Earth, that is, in those Places where there is Plenty of such a Matter, and where likewise the Means are not wanting of acting upon it after this Manner. And it is likewise as certain a Truth, that even those saline Vapours are elevated only to a certain Height in the Air, and that not a very considerable one. And upon this Foundation it was, that the Adepts asserted long ago, that the Air was divided into certain distinct Strata or Beds, each of which contained a distinct Kind of Exhalation and Vapour. Hence, then, it is evident, that by the Means of Water, Heat, Digestion, Solution, Exsiccation, Distillation, Calcination, Combustion, Mixture, Union, and Separation, fossile fixed Salts are rendered volatile, and are thus intermixed with the Air.

The Principles of Fossils, which go by the Name of Sulphurs, whenever Fossils are burnt, are intirely carried up into the Air, and, being intermixed with it, disappear, the saline acid Part changing into a suffocating Fume, and the oleaginous Part being attenuated by the Action of Flame, and flying off in an invisible, or a sooty black Vapour. It is certain, that hardly any Thing at all of these Parts remains in the Earth. Sulphur now itself, when alone, is carried into the Air in Form of an impalpable Flour, and is there dispersed about. But, when it is mixed with other Bodies, it often acquires a surprising Volatility. The Chymists have taken Notice of a great many Methods, both natural and artificial, by which Sulphurs are so changed, that they fly off into the Atmosphere, and carry up other Things along with them. In Mines, from Time to Time, there appear pinguious, stinking, suffocating Fumes, often very troublesome to the Miners, to which, if the Flame of a lighted Candle is applied, they instantly take Fire, not without extreme Danger to the Workmen. But it is certain, that Arsenics, Orpiments, Cobalts, Sulphur of Antimony, Bismuth, Zinc, and other Bodies furnish the Matter of these Vapours. We are also informed of the Falling of a Shower of Brimstone, attended with Lightnings, which, when it was once on Fire, could neither be extinguished by Water nor Motion. *Nov. Literar. An. 1684. P. 63.*

Metals themselves have been found to be so far changed, that even these, under the Form of a volatile Fume, have been elevated and scattered in the Air. This is universally known to be true of Mercury, which, when agitated only by a Fire of six hundred Degrees, flies off, and becomes invisible. And, if the Air, impregnated with it, surrounds, and is applied to a human Body, how wonderfully does it penetrate it, and how quickly does it raise a Salivation! But besides, while it thus flies off, it carries up and bears away with it some Part of certain Metals; as appears from the Distillation of Lead and Tin with Mercury. Even Lead, Tin, Iron, and Copper, if they are disposed in a very strong Heat, at last disappear, by Means of the Volatility they acquire, and thus far are dissipated likewise into the Air. A great Part of imperfect Metals is carried off too by Lead in the Test. But when Cobalts, Arsenic, and the like rapacious Sulphurs, are intimately united with Gold and Silver Ore, the Particles of the Ore being by this Means rendered volatile, when they come to the Fire, these noble Metals are carried away to such a Degree, that, to the great Damage of the Owner, a good Part of them is lost; which, by a gentle Calcination, and the Addition of some fixing Powders, might be intirely preserved. Hence, therefore, it appears, what an Abundance of Gold and Silver may be raised up into the Air. Nothing seems a greater Paradox than volatile Gold, and yet, we are certain, from undeniable chymical Experiments, that, if you take common Sublimate of Mercury, and rub it well with Gold reduced to Powder, and then distil it in a Retort with Regulus of Antimony, the very Body of the Gold will ascend in Form of a red Oil, and become perfectly volatile. By Sulphur, also, calcined Vitriol, and Sal Ammoniac, mixed and applied properly, almost all Metals may be rendered volatile in the Fire. No Wonder then, that, in clear Weather, there very often appear about Mines sudden Fumes, which extinguish the Light of a Torch, (see *Boyle's Works*) since even the most dense Bodies may, in the Form of a Fume, be so carried into the Air, that it can hardly be determined what

Bodies they were. But there is another Cause, which is frequently concerned in impregnating the Air with these metallic Parts; and, that is, the Air itself as it abounds with Salts and Sulphurs. For, as I have already shewn above, that the whole Air is full of Salts and Sulphurs, and, as it appears from what I have now delivered, that those Salts and Sulphurs can carry aloft even Metals themselves, when they are dissolved, it is easy to apprehend, that the Air itself can by this Means cause the Parts of Metals to be suspended and float about in it. Are not Iron, Copper, and Lead, by the Contact and Motion of the Air, always, and that in a short Time too, turned into a Calx, Flour, and Dust? And are not they hence converted into Rust, Verdigrease, and a Ceruss? And it may be observed, that when, after these Changes, they are reduced to an impalpable Powder, they fly away, and are carried through the Air by the Wind. I confess, that Silver, Gold, and Tin are less subject to these Alterations, because the volatile Acids of Nitre and Sea-salt, which are the proper Dissolvents of these Metals, are hardly ever dispersed through the Air, except about the Laboratories of the Chymists. [*I believe this is a small Mistake, for the Air is certainly furnished, and that plentifully, with an acid Spirit, which, fixing it in a proper Matrix, gives the very Effence to Nitre.* See NITRUM.]

The Air in America, indeed, is of so corroding a Nature, that it consumes the Tiles of the Houses, stony Bodies, and almost all Metals; as the English unanimously agree of the Air of Bermudas; for even Metals themselves perish there very soon. And that surprising Phenomenon, which in all Ages has been observed by Miners, seems also to be owing to the Residence of these metallic Parts in the Air, I mean that the fossile Glebes, when they are dug out of the Earth, and are exposed to the Air, are affected by it in a very extraordinary Manner. How frequent is it seen, that Marchasites, the Pyrites, vitriolic Stones, and metallic Substances that are quite exhausted, are so acted upon by the Air, that they increase, come to Maturation, are changed, renewed, and at last impregnated, and become again enriched with a true metallic Matter. In Fact, the Air seems to be the grand universal Distributer of the Seeds of Bodies, which, being plentifully stocked with every Kind of Matter, commits to the Earth the Elements of Bodies it had before received from it, and thus generates most Kinds of Bodies, rather by Means of a Révolution, than a new Production. It is certain, that Dew, being changed by Distillation, has yielded a Liquor, which stained Glass with the Colours of the Rainbow, penetrating so deeply in it, that it could neither be removed by Aqua fortis, Oil of Tartar, or a strong and long continued Friction; and yet, at the same Time, the Liquor itself was so subtle, that it burnt in the Fire like Alcohol: *Republic of Letters, T. 1. P. 590.* Certainly this Effect is very like that of a metallic Tincture upon Glass. *Philosophical Transactions abridged, T. 2. P. 143.*

Thus, then, the few Things I have specified are sufficient to instruct us in our chymical and medicinal Enquiries, what Ideas we ought to form of the Air. In Reality, it is to be considered as a true Chaos of all Things intermixed and compounded together; for in it the attenuated Particles of all Bodies whatsoever float. And, since these little Corpuseles are always in Motion, they may, by meeting in this aerial Space, produce all those surprising Operations of Nature, which are owing to the Efficacy of particular Bodies: But these are almost infinite. So that it is not at all to be wondered at, that there are produced and appear, in this Scene of the Atmosphere, such extraordinary, and frequently such terrible Events in Nature, as never happen any where else; I mean, the Meteors. In this Air there doubtless must be Bodies that are endued with a magnetic Virtue, which, by their mutual Attraction, Repulsion, Cohesion, Rarefaction, and, by infinite other Methods, must every where excite stupendous Phenomena. Of this the following Experiment may serve as an Illustration: Take in one Hand a small open glass Vial, in which there is an alkaline Spirit of Sal Ammoniac, and in the Left another, in which there is Spirit of Nitre. Whilst these Bottles are kept at a Distance from each other, nothing at all appears extraordinary; but, as soon as they are brought gradually so near each other, that the Vapours, issuing from the two Bottles, begin to meet with each other, there immediately appears a little Cloud, arising from the Concurrence of the Alkali and Acid in the Air. If an Amalgama, prepared with Tin and Mercury, is distilled in a Retort, with Spirit of Sea-salt, it yields a Liquor, which, if it be kept in a close Vessel, produces no Effect; and yet, if it is exposed to the open Air, though many Years after its Preparation, it immediately goes off in a very thick Smoke. But Nature is every where full of these Instances. We know not what other hidden Salts there may be besides in the Air, that we are not acquainted with, or with what Virtues they may be endued; nor are we less ignorant, what Spirits and Oils may float in it; though in the mean Time, from the particular Nature of those unknown Salts, Spirits, and Oils, such stupendous

Effects may be produced, as are never observed to proceed from any other Causes. If the distilled Oil of Sassafras happens to meet with Glauber's Spirit of Nitre; what a terrible Effect is produced in an Instant, an Effect hardly to be exhibited by any other Experiment! This Experiment will be given under the Article NITRUM.

If at any Time, now, a Number of Particles, endued with the like Properties, should happen to get into the Air, and these should be there mixed together, very strange and surprising Appearances must necessarily follow. Certain Times, it is evident, present to us with Phenomena, that are never seen at any other. To the Production, now, of these rare and very extraordinary Effects, it is possible, that the Comets, Meteors, various Aspects of the Planets, and, perhaps, the Influence of the Stars themselves, may contribute; those Actions may be very considerable, on Account of their Attraction, and Repulsion, of their Heat, Light, and Cold, and of the Effluvia which they generate and emit.

In Consequence of all the Things here mentioned, Air is of a quite different Nature in different Places; first, on Account of the Land or Soil, or the Part of the Earth which the Air under Consideration hangs over: For, according to the various Bodies with which the Earth abounds in any particular Part, the Exhalations and Vapours, that arise from it, will possess as various Qualities, and for this Reason the Air in that Part will be full of Corpuscles, that are not to be met with any where else. The Truth of this has always been confirmed by numberless Examples. And hence, in such particular Parts of the Air, certain Experiments may be made, that will never succeed in any other. In the second Place, a great Diversity is here observed, in Respect to the Soil, in different Places, according as Men inhabit it, and keep Animals there, and according as they dung and turn up the Ground, and exercise various Occupations there, and by this Means raise up almost all Kinds of Bodies into the Air: On which Account again, an infinite Number of Changes are observed to happen, which are not to be effected elsewhere. A certain Chymist, for Instance, in his Laboratory, where he was daily employed in the Distillation of large Quantities of Vinegar, exposed to the Air some pure, dry, alkaline Salts of Tartar on a glass Plate. The Air, of Consequence, being full of acid Vapours, dissolved the Salt into an Oil of Tartar *per deliquium*, and at the same Time so closely united the acid Parts of the volatile Vinegar with the Alkali of the Tartar, as at last to convert the saturated Mass into a Tartarus Regeneratus, or regenerated Tartar, which melted in the Fire like Wax, and yielded a very noble Remedy for resolving of viscid tenacious Humours, in almost all Diseases. He was mightily pleased therefore with this Production, for he thought he had now discovered the Secret of the Alchemists for incrating, according to the Language of those Artists, a fixed alkaline Salt: But when afterwards he attempted to repeat the Experiment in another Place, where there was not so great and constant a Quantity of Vinegar in the Air, he did not meet with the former Success. The same Thing might be farther made appear by a vast Number of Instances. Consider then, how prodigiously the Air may be changed in any particular Country, when a great Earthquake has occasioned Exhalations to arise there, very different from those which before usually arose in the same Place. And this is again confirmed by History, which informs us, that certain Parts of the Earth have become uninhabitable, by Reason of the abominably fetid Vapours, with which they have been infected, after Earthquakes. But again, Inundations by Rain, Overflowings of Rivers, and the Breaking in of the Sea, make such Alterations in the Atmosphere, by Means of humid Vapours, and Exhalations from putrefied Substances, that the whole Nature of the Air, in those Places, is intirely changed. The Winds also must always carry along with them something from the Places from whence they began to blow, and consequently are thus always varying the Contents of the Air, continually carrying off from particular Places the Matter peculiar to them, and supplying them again with what they just brought from some others. From which Cause, likewise, there must necessarily happen, in chymical Operations, a remarkable Diversity. And as for the Influences of the Heavens, particularly with Respect to the various Aspects of the Sun and Moon, their Accessions, Recessions, perpendicular or oblique Radiations, Conjunctions, and Oppositions, what Changes must these produce in the Air, by their Attraction, Repulsion, and the Heat and Cold that depend upon them? What Variation must they cause in the Vapours and Exhalations that are carried up from the Earth into the Air? But there is one Thing farther on this Subject, which ought to be taken particular Notice of; and that is, the Vicissitude of the Seasons of the Year, which is here of such Efficacy, as is wholly incredible. Thus, if the Sun on the tenth of March, in a certain Altitude, and with a certain Degree of Heat, exerts its Power on the Earth, it then acts on a Body, which during the preceding Winter, being locked up by the Cold, has

kept in, and accumulated, under an icy Crust, its own proper Exhalations, and, at the same Time, has received and retained whatever it was furnished with by the Air. Hence, as soon as it begins to dissolve, and the Earth is resolved into a loose Mould, the first succeeding Heat of the Sun acts upon this fertile pregnant Body, and immediately fills the whole Air with Vapours; on which Account a vernal Heat hardly ever succeeds a Frost of long Continuance, but there presently follow Showers, Thunders and Lightnings, and a Sprightliness appears in all Animals and Vegetables, and in the whole Creation; but now, when, on the tenth of September, the Sun, at the same Altitude, and with the same Degree of Heat, acts upon the Earth, it then finds it parched up, and exhausted by the Heat of the preceding Summer, and not yet moistened with autumnal Showers; for which Reason, neither the same Heat in the Earth, or Air, will produce the same Effects, nor will excite this Vigour in Animals and Vegetables, as it does in the Spring. These few Things then will be sufficient to let us easily see the Variety there is in the Atmosphere, according to the Diversity of the Season of the Year, as far as it arises from this Cause; a Speculation very useful both in Chymistry and natural Philosophy. And, it is plain, the Chymists had some Knowledge of this long ago, when they attributed to the vernal Rain a Virtue so much superior to that of the autumnal, produced in the very same Degree of Heat; for they found that this Lixivium of the Air brought along with it very different Vapours and Exhalations, according to the Diversity of the Season, in the Manner just now explained.

Before we leave the Examination of the various Bodies that are contained in the Air, and of the different Powers which prevail in it, we must take under Consideration that Quality of it, which renders it salutary, and necessary to the Life of Animals and Vegetables; a Quality which has not been yet accounted for from any Property of the Air, but by a diligent Enquiry, however, we may possibly, hereafter, come at the Knowledge of it. Whether this latent Virtue of the Air is actually drawn out of it by Animals and Vegetables, and hence is in a short Time exhausted and consumed; and whether, when it does thus fail, the Animal dies, no-body is, I think, at present able to determine. This, however, is certain, that if a small Bird is put into a large Receiver, full of common cold Air, and the Receiver is then very closely stopped, the Bird will grow sick and vomit, within a Quarter of an Hour, and die in the Space of half an Hour after. Boyle, *Of the Air*, 184. A Fish, kept in Water in a Vessel well closed, without renewing the Air, dies in a short Time. Fish likewise die in Ponds, that are every where frozen, and quickly perish in Water out of which the Air is exhausted. *Exp. de l'Acad. Roy. des Scien.* 1699. 240. 1701. 46. and *Mem.* 224. Flame, and a red-hot Coal, quickly go out in Air that is close pent up. The little Eggs of any Insect whatever, being accurately stopped up in glass Vessels, do not produce their Young, though assisted by a kindly Warmth. The Seeds of Plants likewise duly moistened, and sowed in the best Earth in close Glasses, do not grow, or give any Signs of Life, though excited by a due Degree of Heat. On the other Hand, the upper Surface of Blood, that is exposed to the Air, is of a bright Scarlet Colour, whilst, in every other Part which the Air does not come at, it grows as black as the Blood of the Cuttle-fish; and yet, as soon as ever this black Part is laid open to the Air, the black Colour is immediately changed again into a Scarlet. All these Experiments then make it appear, that there is in the Air a certain hidden Virtue, which cannot be accounted for from all the Properties of the Air, which have been hitherto discovered. Sendivogius maintained it openly, that there lies hid in the Air the occult Food of Life, and other Chymists have asserted the same. But, what that is, or how it acts, or what is the proper Effect of it, is a Matter still in the Dark. Happy the Person that shall discover it! Thus far Boerhaave.

This vivifying Principle in the Air, so necessary to the Support of Flame and Fire, as well as animal and vegetable Life, seems by every Phenomenon to be the universal Acid distributed through the intire Atmosphere in a certain Proportion, inasmuch that no Portion of Air seems to be without it. This, though not perceivable by the Senses, is however very manifest by its Effects. It is this Acid that corrodes the baser Metals in a very short Space of Time, and even Gold and Silver are not intirely free from its Influence. By this Acid the Calx of Vitriol, of Alum, and the Earth from which Nitre has been procured, are again replenished in such a Manner, as to be capable of producing acid Spirits afresh. We may conclude, that Flesh, exposed to the Air for some Time, contracts a Redness from the Influence of this Acid, because Nitre has the very same Effect in producing the same Colour. Vegetable aromatic Oils also are changed by the Acid of the Air red, for, if a Vial is filled with certain aromatic Oils, and close stopped, it will preserve its original Transparency; but, if a Part of the very same Oil is inclosed in a Bottle not quite full, the small Portion of Acid, by the Air contained in the Vacancy, will

will change the Oil red, as Hoffman informs us. Hence there is Reason to suspect, that Flowers, which are all, more or less, furnished with an aromatic Oil, are obliged to the Acid of the Air for their beautiful Colours, which it strikes upon them variously, as the Oil, or Sulphur, which it meets with on the Petals determines it to one Colour or another; and the Chymists have long since discovered, that Sulphur, as they call Oil, is the Parent of Colours. It is remarkable that Scarlet-dyers cannot strike their Colours without the Assistance of an Acid. Hence the Phænomenon of the Surface of Blood, when exposed to Air contracting a Redness, may be in some Measure accounted for. And indeed, all those concerned in the Business of Dying observe, that a cloudy moist Air very much interferes with the Beauty and Vividness of their Colours; and that, on the Contrary, a serene Sky exalts them, and makes them more elegant. Now it is known, that in this State of the Air an Acid abounds much more than when the Weather is cloudy, and full of Vapours. Flowers are also liable to the same Influence of the Air in different States, for their Colours are never so much exalted as when the Air is serene and clear, that is, when it abounds with an Acid.

Every body, concerned in Medicine, knows, that all antimonial Preparations will contract an emetic Quality from Acids, and it is also certain, that the same Medicines will prove emetic, if they are exposed to the naked Air; hence it is very probable that an Acid is communicated to them from the Air.

Nitre also borrows its Acid intirely from the Air. See NITRUM.

Upon the Whole, I am convinced, that the Acid of the Air finds some Way of mixing with the Blood of Animals, though I cannot determine the specific Manner in which this Union is accomplished. But I am inclined to believe, that this grand Operation is performed in the Lungs, because Air is insufficient for the Purposes of Respiration after repeated Inspirations, unless a free Intercourse is maintained with the external Air. Hence it should appear, that something contained in the Air is wasted, of which it stands in Need of a fresh Supply, in order to render it capable of maintaining Life. Now if we consider, that the Blood most certainly acquires a red Colour in the Lungs, and at the same Time, if we reflect on what was observed before, with Respect to the Power of Acids, in producing this Colour, when mixed with Sulphurs, it will be a Step, at least, to the Confirmation of this Sentiment. Add to this, that Asthmas, which prevent the Air from being taken regularly into the Lungs, are productive of Dropsies, the Blood loses its Colour as well as Texture, and becomes pale and watery. Girls also, in a Chlorosis, have a temporary Asthma, and hence, perhaps, their Blood is always pale and thin, sometimes even as white as Milk or Chyle.

I know that I am singular in this Sentiment, as the Modes of Philosophy now stand, and that Boerhaave, for whose Judgment I have the greatest Deference, is of the contrary Opinion. But I see no Reason, why so exceeding subtle and penetrating a Body as this Acid of the Air may not as well enter the Pores of the Vessels of the Lungs, during Inspiration, as a more gross and even visible Halitus, or Vapour, exhale thro' the same Pores in Expiration. We know the Particles which constitute the Blood are large enough to be visible in Microscopes, but those which compose the aerial Acid are so extremely minute, as not to be discoverable to the Sight, by any Art whatever. Hence then it appears very plain, that Vessels may admit the Acid above-mentioned, from without, and yet easily retain the Blood circulating within.

From this Account of the Air, its Properties, and Contents, many curious Appearances, relating to the animal Œconomy, may be understood.

First then, Air, as a fluid Body, is the Vehicle of the Effluvia of all odorous Bodies to the Organs of Smelling, and, as a ponderous Fluid, it presses them on the Nerves of these Organs with a Force sufficient to make them sensible. It also impresses sapid Substances upon the Organs of Taste, and renders them observable by the Senses. It is also the Instrument of Sound, for the Undulations caused in it, by Bodies moved in various Manners, strike upon the external Ear, which, by a singular Mechanism, communicates this Notice to the Nerves expanded upon the internal Ear. This Weight of the Air too, by pressing upon the Surface of Animals and Vegetables, prevents a Rupture of their Vessels, from the Force necessary to circulate their Juices, to which it is, as it were, a Counterbalance. All these Things are evident, because on the Tops of high Mountains, where the Air is very rare, the Senses of Smelling, Tasting, and Hearing, are very languid; it is said, that on the Pico of Teneriffe, Pepper, Ginger, Salt, and Spirits have no sensible Taste, and that nothing affects the Organs of Taste, except Canary Wine, which, it is supposed to do in these Circumstances, by Reason of its Oiliness, which makes it adhere to the Nerves of the Palate. On the Tops of Mountains also the Blood-vessels are very subject to burst, whence frequent Hemorrhages happen to those who travel to their Summits.

The Air also, in Virtue of its Elasticity, contributes greatly to the Solution of the Aliment in the Stomachs of Animals. For, when that which is contained in every Part of the Food is rarefied and expanded by the Heat it meets with in the Stomach, it destroys the Cohesion of the component Particles, and assists in reducing it to a State of Fluidity. At the same Time, as it is confined in the Stomach, all its Action must be determined to the Aliment, which it must therefore act upon with great Force, in this rarefied State.

Respiration, so necessary to the Continuance of animal Life, is performed by Means of the Air. For, when the Air is expelled out of the Lungs, the pulmonary Vessels through which the Blood circulates, from the right Ventricle of the Heart, and by which it is returned to the left Auricle, collapse, and are no longer pervious, till the Air, rushing into the Branches of the Aspera Arteria upon the Elevation of the Breast, distends the Lungs, and thereby opens not only the Air-vessels, but also the Branches of the pulmonary Vein and Artery, which accompany, every where, those of the Aspera Arteria. Here the Air, as a heavy Fluid, acts upon, compresses, and comminutes the Blood, and, as it is elastic and dilatable by Heat, the Action of it upon the Blood in the Lungs is by this Property rendered greater. If also, as I have supposed, the aerial Acid, or vital Spirit, is communicated to the Blood in the Lungs, from the Air, some Effects of great Importance to the animal Œconomy must necessarily arise from hence.

And, indeed, if we consider the Air in all Lights, we shall find, that every Alteration it undergoes, must induce some great Change on the animal Machine, if I may so call an animal Body. Thus, when it is very heavy, it must press upon the Surface of our Bodies, and the internal Parts of the Lungs, with a greater Force than when it is light. It has been proved by curious Observers, that the Difference of Weight, with which our Bodies are pressed, by the Atmosphere, in the greatest Degree of its natural Gravity, from that which we sustain when it is the lightest, amounts to 3982½ Troy Weight. Now, as this Difference is very great, the Effects of it must also be considerable.

The different Degrees also of Heat and Elasticity in the Air must have Effects proportioned to the Causes upon the Bodies of Animals. The various Contents also of the Air must of Course induce great Changes, as it some Way or other finds Means to communicate the Qualities it borrows from them to the Blood and Juices of Animals. Hence it becomes the Vehicle of Contagion, and the Propagator of Diseases, both epidemical, and endemial, which admit of infinite Variety, because the Alterations of the Air, with Respect to its Properties, and to the innumerable Combinations of Bodies contained in it, are infinite.

However, we may venture to conclude, that the most healthful is that which is serene and dry, and consequently ponderous, and replete with the acid vital Spirit. A gravelly Soil is most likely to be furnished with such an Air, because from such a one few or no oily Particles can exhale to infect it. Countries also, where there is a Variety of Hills and Vallies, with swift Rivulets of Water running through them, are productive of a good Air, because such Situations cause a Circulation of the Air, and such Currents of Water always produce one in the Atmosphere.

I must not dismiss the Subject of the Air, without taking Notice of a great Error, which many inconsiderately run into with Respect to Exercise; it is, that they esteem Motion only conducive to Health, and this Sydenham seems to give into, when he attributes the Advantages of Riding to repeated Succussion. However, we find by Experience that the same Degrees of Motion or Succussion by Exercise in a House, or under Covert, come far short in Point of Efficacy in curing Diseases, and preserving Health, of that performed in the fresh Air, especially when it is pure, and not abounding with Vapours and Exhalations. The Reason of this is very plain, for, when an Animal is moving forwards, he is perpetually respiring Air, which has not, by repeated Inspirations, been robbed of the vital Principle, be that what it will, so necessary to the Support of Life, and Preservation of Health. Hence, Sailing even upon calm Rivers, an Exercise much recommended by the Antients in the most obstinate Disempers, though attended with a very small Degree of Succussion, is nevertheless efficacious, by Reason of a perpetual Change of Air.

Vitruvius, sensible of the Efficacy of the Air in preserving or destroying Health, lays down the following Rules for chusing a proper Situation for a new City, which ought to be regarded in every new Settlement, and should not be neglected even in building a Farm-house. His Philosophy, however, is not always the best; but the Reasons for his Rules will appear by the preceding Pages, inasmuch that the Reader will not be at a Loss to account for what he asserts.

In erecting Walls we are to proceed on these Principles: First, a healthy Situation is to be chosen; such a one must be raised above the Annoyance of Fogs or cold Dewes, and must regard,

regard, or face, not the cold or hot, but the temperate Quarters of the Heavens. Our next Care must be to avoid the Neighbourhood of a Marsh; for in such a Situation the gross Vapours exhaling with the rising Sun, and condensed into a Fog, together with the poisonous Spirits of the Animals inhabiting the Fens, are wafted with the Morning Breeze to your new City, and disperse their unwholesome Blasts on the Inhabitants, so as to cause a Pestilence. If your Walls run along by the Sea, facing the South or West, the Place will not be healthy. For, in the first Case, the Southern Air is heated by the rising, and burns with the meridian Sun; and in the latter Situation, it is warmed by the rising, heated by the meridian, and burns with the declining Sun; so that the Inhabitants suffer very much in their Bodies by these great Vicissitudes of Heat and Cold. We are taught this Reflection even from inanimate Things. In your close Wine-cellars, none opens a Light to the South or West, but always to the North, because that Quarter is subject to no Changes from any Season, but remains for ever firm and immutable. From the same Cause the Granaries, which any Ways face the Course of the Sun, are soon corrupted; and Provisions, or Apples, laid in a Place that is not turned from the Sun, will not keep long. For Heat, by perpetually rarefying, destroys the Firmness of the Air, and, by continued Attacks of fervid Vapours, draws forth its natural Powers, and dissolves, or softens and enfeebles them by its quick and penetrating Quality. We perceive the Effects of Heat on Iron, which, though hard by Nature, yet, when thoroughly heated at the Forge, becomes so soft and ductile, as to be capable of all Manner of Forms. Let the same Iron, when soft and sparkling red, be refrigerated, by dipping it in cold Water, it shall revert to its former Nature, and resume its original Hardness. This will be further illustrated, if we consider, that in the Summer all Bodies, as well in healthy as unhealthy Regions, grow weak with Heat; but, in Winter, the most pestilential Countries become healthy, because Bodies are at that Season consolidated and strengthened by Refrigerations. For the same Reason, Bodies, removed out of cold into hot Regions, cannot endure the Heat, but are dissolved; whereas, on the contrary, transported from a hot Climate to the cold Northern Countries, they are so far from being injured by the Change of Place, that they are strengthened and hardened by it.

It appears from these Considerations, that, when we would raise our Walls, we are to appoint them a Situation proper to guard against those Regions, whence hot and unwholesome Blasts may proceed, and scatter their baleful Influence over the Bodies of Men. For, all Bodies are constituted of Elements, which the Greeks call *στοιχεῖα*, namely, Heat, Moisture, Earth, and Air; of a due Mixture of these Elements, according to the Order of Nature, are all the Animals of the World, with their specific Properties, composed and tempered. Hence, where Heat is the predominant Principle, it destroys the rest, and dissolves that Body by its Fervor. And this is the ill Effect of an hot Blast from certain Quarters, which, being received into the open Pores, overpowers the other Principles, and proves too hard for the Constitution. In like Manner, if Moisture fills the Veins, and overflows the Body, and by that Means destroys the Equilibrium, the other Principles are corrupted by the redundant Liquid, and all the Virtues and Powers of that Composition are dissolved and washed away. Bodies are also sometimes injured by Refrigerations of Moisture from fresh and cooling Gales. No less do the other two Elements that enter the Composition of the natural Body, which are Earth and Air, by their Excess or Defect, weaken and subvert the rest; the Earth, for Instance, by oppressing Nature with Plenitude of Food, and the Air by an overcast and gloomy Sky.

But, for the more evident Demonstration of these Things to the Senses, we need only watch the Steps, and observe the Operations of Nature, in Birds, Fishes, and terrestrial Animals, by which Means their different Temperature will come under Consideration. For the Kind of Birds are of one Composition, the Fishes of another, and terrestrial Animals of a third, widely different from them both. Birds have less of Earth and Moisture, but much of a temperate Heat and Air; so that, being constituted of lighter Elements, they may the more easily make their Way in the Air. Fishes, whose Nature requires Water for Existence and Motion, are temperate as to Heat, and chiefly composed of Earth and Air, but have very little Moisture, the less of which Principle they have in their Composition, the better qualified they are to subsist in it. Hence, when they are cast on Land, they lose their Lives with their Water. In terrestrial Animals, the Elements of Air and Heat are clogged with Earth and Moisture, so that, because the humid Parts abound in them, they cannot live long in Water.

Now if the Case be thus as we have represented it, and that we are convinced by our Senses, that the Bodies of Animals are constituted of these Elements, or Principles, and labour under Excesses and Defects of these Constituents, and are subject to Dissolution, we cannot doubt of the Importance of

our chusing and making the best Advantage of the most temperate Quarters of the Heavens, when we propose to ourselves an healthy Situation of the Walls we are about to erect. And here I cannot help wishing again and again, for the Custom of the Antients. Our Forefathers used to examine the Livers of the Cattle they offered in Sacrifice in those Places where they built a Town, or pitched their Camp; and if the first were livid, or corrupt, they offered others, because they doubted whether the Defect were owing to some Distemper, or to the Badness of their Food. After they had proved, by many Experiments, the Goodness of the Water and Forage, from the Soundness and Solidity of the Livers, there they erected Fortifications, and projected Settlements. But, if the Livers were found defective, they concluded, that the same Food and Water would work a like Effect on human Bodies, and so occasion a Pestilence. Therefore they speedily decamped, and went in Search of better Air and Diet, preferring Health above all Things.

That we are beholden to the Soil for the Goodness and Wholesomeness of Provisions, both for Man and Beast, is demonstrable from the Lands of the Cretans, which lie along the River Pothereus, between the two Cities Gnosos and Cortyna. Sheep and black Cattle graze to the Right and Left of the said River; but those which feed next to Gnosos are not without a Spleen; on the other Side, those next to Cortyna have no Appearance of any. Whence Physicians, inquiring into the Cause of this Phenomenon, discovered an Herb, which the Cattle had eaten, and by its Virtue wasted away their Spleen. They gathered this Herb, and from that Time made Use of it to very good Purpose, in Disorders of the Spleen, for which Reason the Cretans gave it the Name of *Ἀσπιληνισ*. This Example shews us, that the natural Wholesomeness or Unwholesomeness of a Place may be known from the Food and Water it affords.

If the Walls be erected in a Marsh, which lies along by the Sea, and facing the North, or between the North and the East, and those Marshes be higher than the Sea-shore, there seems to be Reason for chusing such a Situation; for by digging Canals an Outlet may be made for the Waters to the Shore, and, at every tempestuous Swelling of the Sea, the salt Waters, overflowing and mixing with those of the Marsh, will hinder the Generation of those noxious Animals that breed in standing Lakes and Marshes, and such as swim from higher Grounds towards the Shore are killed by the Saltness of the Waters, to which they are not accustomed. We have Instances to this Purpose in the Cities of Altinum, Ravenna, and Aquileia, and other Towns situated by the Marshes of Gallia, which, by the Means aforesaid, are very healthy Places. But a Town seated by a Marsh or Lake of standing Waters, that have no Outlet either by Canals or by Means of a River running through them, must of Necessity suffer in Point of Health, for such Waters putrefy by Standing, and send forth noisome and pestilential Exhalations. For Example, the old Town of Salapia which was built by Diomedes, in his Return from Troy, or, as others write, by Elphias the Rhodian, had the Misfortune of such a Situation. The Inhabitants, being yearly visited with an epidemical Sickness, addressed themselves by public Petition to M. Hostilius, and intreated him to survey and chuse for them a commodious Place, whither they might transfer their Habitations. He immediately undertook the Affair, and, having first well examined the Nature and Reason of his Undertaking, purchased a Tract of Land near the Sea, in a healthy Place, and then preferred a Petition to the Senate and People of Rome, that the Salapians might have Leave granted them to remove their Habitations, and build a new City. This obtained, he erected Walls, plotted out the Ground, and allotted to every Freeman his Possession in Fee-simple, paying only a single Sesterce [a Piece of Silver worth about Two-pence]. Matters thus settled, he opened a Way for the Lake to discharge itself into the Sea, and, in so doing, made of the Lake a Port to the new City. And thus are the Salapians, by a Remove of four Miles from their old Town, now established in a healthy Situation. *Vitruvius, L. 1. C. 4.*

I shall add to this Account of Air the Sentiments of the famous de Villa Nova, which are in the general extremely just, and from which many excellent Hints have been taken by Boerhaave, in the foregoing Treatise on this Subject. Some small Allowances must be made on Account of the Time in which the Author wrote.

A clear, subtle, and pure Air clarifies, subtilises, and refines the Blood and Spirits. Of Consequence, therefore, it makes the Heart glad, the Mind serene, the Body lightsome, and accelerates Digestion throughout all the Members. On the contrary, a cloudy, gross, and turbulent Air darkens the Heart, disturbs the Mind, makes the Body heavy, and retards and hinders Digestion, so that the Superfluities, at least such as are fuliginous and vaporous, cannot soon be resolved by the Body. The Air is influenced from external Causes, as from the Stars, from Minerals, Plants, and Animals, or other insensible Powers, which most effectually alter the Body; so that at some

some Seasons and Places it becomes poisonous and pestilential ; at others so pure and salutary, and, as it were, theriacal, that no Venom can there find Place to hurt the Body, or but very little, as in Ireland, and the adjacent Islands, in some of which, even dead Bodies, exposed to the Air, will not corrupt. And so remarkable are the Effects of the Air upon human Bodies, at some Seasons, as to attemper and illuminate the Brain and Spirits to such a Degree, that they are elevated, in an extraordinary Manner, to the Contemplation of occult Intelligences, and the Speculation of Futurities, and to an expedite Performance of all the Acts of Reason. At other Times, on the Contrary, such Disturbances in the human Frame are wrought by the Air, that Reason receives infinite Damage thereby, and is either totally lost or suspended. The accidental Effects of Air are innumerable, according to the various Dispositions of the Body in the different Stages of Life: As, for Instance, a cold Air comforts the digestive Faculty, and corroborates the Body, where the Viscera abound with Spirits, by compressing and repelling the natural Heat inwards; a warm Air, by its contrary Operation in drawing it outwards, has a contrary Effect. A Physician, therefore, ought to know the Causes of the Changes that are wrought in the Air. It is altered by the Influence of celestial and elementary Bodies. By the first it undergoes a Multiplicity of Changes, the most obvious of which are those made by the Sun in the four Seasons of the Year, and the Moon in her four Quarters. The common and natural Disposition of the Air in these four Seasons is best observed in the Middle of each ; for in their Extremities they coincide with one another. In the Spring, for Instance, according to the common Course of the Sun, the Air is temperate as to the four Qualities [Heat, Cold, Dryness, Moisture] and therefore it is called a temperate Season. Such a one it must be, which maintains the Body in a middle Disposition, not altering it by any manifest Quality, neither causing it to sweat or burn with Heat, nor shake, shiver, or shrink with Cold ; neither hardening, withering, furrowing, or wrinkling it with Dryness, nor softening, benumbing, or loading it with Rheumatisms by excessive Moisture. The Predominancy of Heat and Dryness is most evident about the Middle of Summer, especially while the Sun passes through Leo, and is in Conjunction with the Dog-star. In the Middle of Autumn, the Air is moderately cold, and manifestly inclined to Dryness ; in the Middle of Winter cold and moist. But in these very Seasons the Air is liable to Alterations from its usual Disposition from accidental Causes. In the four Quarters of the Moon, the Changes of the Air are most evident in the Intention and Remission of Coldness and Moisture.

The Changes, caused in the Air by elementary Bodies, are either made by Fire actually working on inferior Subjects, from Water, Earth, or their Contents, or from Vapours resolved and exhaling [which are Effluvia or Exhalations] from them.

Fire heats and dries, and sometimes overcasts it with Smoke ; now, if the Air of an Habitation, where are several Ovens, or Furnaces, and great Fires often made, should be naturally warm and dry, it will be excessive in those Qualities, when the Fires are kindled. But, if the Air naturally incline to the opposite Qualities, it will be purified, and the Excess of Cold and Moisture corrected.

Waters of themselves cool and moisten the neighbouring Air, and fresh Waters more than those which are salt. But from the Refulgency [Reflection] of the Sun's Rays that strike upon them, they double both the Heat and Luminousness of the Air ; for, whenever the Sea, or a great Body of Waters, lies between the Sun, especially when it is in the Meridian, and an Habitation, the House is the hotter, and the Air so luminous, that, in a Summer's Noon, the Inhabitants, especially those who have tender Eyes, have no Use of their Sight.

The Earth influences the Air by its Qualities and Situation ; first, by its Qualities, for, if it be a fat clayey Soil, it renders the Air moist and thick ; if dry and sandy, it makes a dry and dusty Air ; but dry and stony a dry and pure Air. The Situation of a Portion of Earth is fourfold ; on a Hill, on its Declivity, in a Valley, or in an open Champagne. The Air on the Top of Hills, compared with that of the circumjacent lower Regions, is very thin, free from Vapours, and cold. In Vallies, surrounded by Hills, the Air must be gross and impure, and hot, compared with that on the Hills, because of the Reflection of the Rays, especially in Summer. But in the Winter, if the Mountains be extraordinary high, the Air is coldest in the Valley, because it is overshadowed. The Air on the Declivity of Hills is of a middle Substance, and moderately pure, unless it be accidentally influenced, as by Vapours ascending thither from some neighbouring Marsh, and reflected by the Tops of the Hills, by which Means the Air is considerably thickened, so as to be sometimes warmer, sometimes colder than on the Top, sometimes it is of a middle Quality ; for, if the Declivity lies to the North, it is coldest when shadowed by the Top ; if to the South, it is the warmer

for reflecting the Noon-tide Rays, and being sheltered from Northern Blasts. If the Declivity faces the East or West, it will be hot or cold in a moderate Degree. An open Champagne, or Field, lies out of the Reach of any Shadow from Hills, but receives the whole Benefit of the Sun's Course. The Air in such a Situation is moderate in all its Dispositions.

The Contents of the Earth and Waters cause Alterations in the Air, but those of the Waters more seldom. For the Contents of Waters in constant Agitation, as is the Sea, make no sensible Change of the Air ; but standing Waters, like the Carcasses of Animals, or rotten Plants, infect it with their hurtful Qualities. But the Things, contained in the Earth, very often influence the Air ; some of these are natural, others artificial. Of the Natural, some are Minerals, some Plants, and some are Superfluities generated from Animals.

Minerals operate according to their natural Properties. Thus Mines of Sulphur and Arsenic heat and dry the Air ; Marchasites and Antimony cool and dry it ; and so of the rest. Mines of theriacal Stone, such as those which the Arabians call Bezabar, make a theriacal Air, opposite to all Poisons.

Plants alter the Air, by their Quantity and Quality. In Quantity ; for high Trees, especially if they stand thick, as in Woods, obumbrate the Air, and hinder its Ventilation, whence it grows thick and heavy, therefore a House situated within a Thicket of Trees is no healthy Habitation. If a Wood lie on the North-side of your Mansion, it defends it from the cold Winds that blow from that Part ; if to the South, it moderates the sultry Heat of Summer. Plants influence the Air also by their Qualities. The Aromatics temper it with their aromatic Sweetness and Purity, and the fetid ones, with their noisome and disagreeable Effluvia, and so of other Qualities. Hence the Brain and Spirits are much damped and clouded by sitting under a Tree of a sharp and bitter Taste, as the Fig-tree, the Walnut, and Pomegranate-trees, but especially a Tree of a rank or fetid Smell, as the Elder : The same is to be said with Respect to the Cuttings of Plants that are strewed in Houses.

The Superfluities, generated of Animals, are either such as proceed from them while alive, or their Remains after Death. Among the first only the Excrement evidently causes an Alteration. All Excrements heat the Air, and some dry it, as does that of a Dove ; others, as that of a Cow or Hog, thicken and moisten it ; only Man's communicate to it a fetid Quality. Dead Carcasses manifestly change the Air by their Putrefaction.

The Things resolved [that fly off] from the Earth, and the Water, and their Contents, are Vapours. That the Particles resolved [Effluvia] from the Contents of the Earth and Sea, cause an Alteration, is evident from what has been said ; and indeed they have so great an Influence as to corrupt its Substance, and render it pestilential, and inclined, by its poisonous Qualities, to vitiate and putrefy the Blood and Spirits in the Heart and Arteries, especially in such as are infirm or predisposed to Putrefaction. Such are Vapours from dead Carcasses and Intestines of Animals, and Multitudes of Sick in great Armies, especially in a hot, close, still Air. The Vapours which exhale from Water infrigidate and moisten the Air, and if very dense, as in a Mist, render it gross and inactive.

Vapours that fly off from the Earth cause a manifest Change in the Air, as well as the Winds. Of these there are four principal ones, according to the four Cardinal Points, and all of them by Nature dry. But passing over Seas, or very watery Regions, drive the humid Vapours before them into remote Countries : Whence the South-wind brings Rains, and a moist Air, to those who live North of the Mediterranean Sea, but Heat and dry Weather to those who live to the South of that Sea. The North-wind is the Reverse of the other ; and the same Judgment is to be formed of the East and West-winds, which are moist in one Country and dry in another, for the above-mentioned Reason. But the South-wind is hot in itself, and the North-wind cold ; the rest are temperate. Yet all of them, in passing over the intervening Regions, may acquire accidental Qualities ; for Instance, Cold in their Passage over black and snowy Countries, or Heat in blowing over burning Sands and Deserts. But their Impression is most felt, when they blow through the Straits of Mountains into narrow Vallies.

Air may also be changed artificially by human Industry ; as, in Mansions, according to Matter, Form, Situation, Quantity, and Residence. As to the first of these Particulars : A House built all of Stone, or Earth, or Bricks and Mortar, makes the circumjacent Air cold, but one erected with Wood, and thatch'd with Straw, heats the Air, or if the Floor of the House be paved with Stone, or Brick, the Air will be the purer but much the colder ; but an earthen Floor renders the Air dusty and offensive to the Lungs.

Secondly, the Form, as well as the Matter, or Materials of a House, influences the Air, as in the Abundance or Defects of Spiracula, that is, Windows and Chimnies ; for the Multitude of these ventilates and purifies the Air, though it render it less still and quiet. Windows towards the North cool the House,

as those towards the South warm it; those towards the East and West are indifferent. If a House want Spiracles, like a Shell, or have them stopped, the Air becomes gross and impure, and difficult to breathe. If it be very much frequented, it is soon heated, and grows sultry, as in Stoves, and where sick Persons are lodged, in which Places, from Nastiness and Putrefaction of Humours, it is soon corrupted. Whence it follows, that under Tents and Pavilions, erected in the open Field, the Air is purer and freer, for it vents itself every Way through the thin Cloth. But it is not safe, for all that, to lodge in the open Air, because of its sudden Alterations, and the perpendicular Incidence of the celestial Rays, which have the greatest Force. Therefore the Pavilions, which are covered with good thick Leather from the Top to the Middle, are most commodious to sleep in.

In the third Place, a House may be situated on the Superficies of the Earth, or below it. On the Superficies the Earth is certainly purer and finer; a subterraneous Room has a thick and impure Air, very cold in Summer, and hot and smoaky in the Winter, and disposing to Rheumatisms, at all Seasons.

In the fourth Place, the Quantity of an House may be considered with Respect to the Whole, or the Parts. A large and lofty Mansion has the purest and always the coldest Air, the Opposite to this, the warmer Air, but less pure. That which has the thickest Walls, and is covered most towards the South, is the colder, but if its thickest Walls and closest Covert stand towards the North, it is so much the warmer. If the Fences be thin on both Sides the Impressions from either of these Qualities, Heat or Cold are the more easily felt.

Fifthly, if the House be constantly inhabited, the Air in the same will be warmer, and purer, and also drier, for it is warmed and purified by the Heat of the Body, and by Fire; but, if it remains long without any Inhabitants, the Air grows cold and moist, and is corrupted, especially if it be close pent in, subterraneous, want Vent-holes, or the Space under Cover contain many Ditches and Caverns. *Arnaldus de Villa Nova.*

I cannot omit inserting in this Place the celebrated Treatise of Hippocrates, *περί αἵματος, ὑδάτων, τήνων*, because the preceding Pages will assist us in accounting for, and explaining many important Assertions of its admirable Author, besides that if I have made it intelligible in our own Language, it will afford many agreeable Speculations.

HIPPOCRATES OF AIR, WATERS, and SITUATIONS.

Whoever has an Inclination to pursue a right Method in his medicinal Enquiries, should observe this Order: First, he should study the Seasons of the Year, and learn, what Effects each of them is capable of producing; for they are in no Respect alike, but differ exceedingly, both in Regard to each other, and to the various Changes, which happen in each respective Season. Next the Winds should be regarded, the hot as well as the cold; principally those which are common to all the World, and afterwards those by which particular Regions are chiefly affected. The Qualities of Water should also be considered, because each of these differ not less in their Effects than in Taste and Gravity.

Upon these Accounts, when a Physician arrives at a City, with which he is not acquainted, he should inform himself well of the Situation, learn what Winds principally affect it, and remark how it lies with Respect to the rising Sun; for the Influences of a North or South-wind, the Morning or Evening-sun, upon the Place, cannot be alike. These Circumstances therefore must be diligently considered; nor must the Water pass unregarded, for it is of Importance to know whether the Place is supplied with soft Water from Lakes, or by Currents from Hills or Rocks, with that which is hard; as also whether the Water is salt, heavy, and difficult to boil, or the Contrary.

It should also be considered, whether the Country be naked and dry, or covered with Woods and damp; and whether it be a Valley, and for that Reason subject to suffocating Heats, or elevated, and consequently cool. Observe, moreover, the Diet to which the Inhabitants are in general addicted; whether they indulge themselves in Excesses of Eating, Drinking, and Inactivity; whether, on the Contrary, they are inured to much Exercise and Labour; or, lastly, whether their Intemperance consists more in Eating than in Drinking. For from these Circumstances we are to form a Judgment of their Diseases, and of the Things best adapted to relieve them; inasmuch that a Physician, perfectly well acquainted with all these Particulars, or, at least, the greatest Part of them, when he arrives at a City to which he was an utter Stranger, cannot be ignorant of the endemial Distempers of the Country, or the Nature of the Inhabitants; and hence the Investigation of sure and infallible Methods of Cure will not be difficult, which without this previous Knowledge would be less easy. Besides, he will be able to foresee, whether particular Seasons,

or the Year in general, will be sickly, or healthful, and to foretel what epidemical Distempers will prevail, either in the Summer, or in the Winter; and also what Kinds of Diseases particular Persons will be in Danger of incurring, from an Alteration in their Diet. [*I suppose the Author means that Alteration of Diet, which the Seasons necessarily induce.*] Thus being acquainted with the Seasons, and the Risings and Settings of the Stars, as they happen in Order, he may know what Sort of Year is likely to ensue; and these Enquiries into the Nature of the Seasons will enable him to form a right Judgment of particular Cases which occur, will contribute to make him successful in Practice, and to preserve him, as much as is possible, from Error.

If any one should disregard these Things, as barren meteorological Speculations, he may readily learn, if his Obstinacy does not interfere, that Astronomy is of no small Importance to Medicine, because the Changes of the Seasons constantly induce an Alteration in the digestive Organs of Men. But in what Manner the above-mentioned Particulars should be considered and explored, I shall proceed to specify.

Whatever City is exposed to and frequently affected by the hot Winds, which are those that blow from betwixt the Rising and Setting of the Winter-sun, but is sheltered from the North-winds, is plentifully furnished with Water of a salust Taste, and which is not very subject to evaporate, being also hot in Summer, and cold in the Winter. *

Cities which enjoy a better Exposure in Regard to the Sun and Winds, and which use good Waters, are less sensible of the following Changes; but Cities which are obliged to make Use of stagnating and marshy Waters, and which have a worse Situation with Respect to the Sun, and Winds, are yet more subject to the Influences of the Alterations in the Seasons.

If the Summer is dry, Diseases are of shorter Duration, but if rainy, they continue longer; on this Occasion also, Ulcers are very inclinable to grow phagedenic from slight Causes.

If the Winter is cold, Men are subject to Rheums in their Heads, and to Diarrhoeas, caused by Phlegm falling from the Head upon the Intestines. They also seem relaxed, and neither eat with Appetite, nor drink plentifully, which last is not to be wondered at, because weak Heads are not likely to bear much Drinking, and Livers are considerably affected by a Debauch.

The reigning Diseases are as follows: First, the Women are unhealthy and subject to Rheums, and many are unfertile, not on Account of any natural Infirmary, but for Want of Health; and are subject to frequent Miscarriages. The Children are often afflicted with Convulsions, and Asthmas, which are esteemed productive of the Epilepsy, a Disorder frequent among Children. The Men are affected with Dysenteries, Diarrhoeas, Fevers, attended with perpetual Shiverings, obstinate, wintery Fevers, frequent Eruptions, and the Piles. But Pleurifies, Peripneumonies, burning Fevers, and those Distempers, which generally go by the Name of Acute, are seldom heard of; and indeed it is not likely they should, when the Habit is so inclined to be laxative. Besides these, moist Inflammations of the Eyes, which are slight, and of no long Duration, are common, unless some general Distemper rages epidemically, on Account of Alterations in the Season. Men above sixty, being subject to Defluxions from the Brain are infested with Palsies, especially if they expose their Heads suddenly to the Sun, or to the Cold. These are the Diseases to which such a Southern Situation is principally subject, unless some epidemical Distemper from the Change of Seasons prevails, of which the ordinary Diseases participate.

Cities which have an Aspect directly contrary to the above-mentioned, that is, which are exposed and much accustomed to Winds, which blow from the Points betwixt the vernal Rising, and Setting of the Sun, and which are sheltered from the South-winds, and vernal Gales, are thus affected: First, it is remarkable, that their hard and cold Waters are generally sweet. The Inhabitants are necessarily strong, dry, and generally difficult to purge, and costive; but vomit, however, more readily, and are more affected by Bile, than Phlegm; their Heads are healthy and hard; and they are subject to frequent Ruptures of the Vessels. Their usual Distempers are Pleurifies, which are very common, as well as all those Diseases which are esteemed Acute. And indeed it cannot happen otherwise, by Reason of their habitual Costiveness; they are also liable to Suppurations on very slight Occasions, on Account of the Tension of their Fibres, and extraordinary Costiveness; but their Dryness, and the Coldness of the Waters, incline the Vessels to Rupture. These People must of Course be great Eaters, and but moderate Drinkers; for it is scarcely possible for the same Person to indulge himself in Excesses both of Eating and Drinking at the same Time. They are subject to violent and acute Inflammations of the Eyes,

* The Words *μη μέρους* have embarrassed the Interpreters a great deal, and it has generally been translated in such a Manner as to embroil the whole Passage not a little. I believe the Author means here by *μη μέρους* the same as by *ἀντιπρῶτον*, that is, not easy to boil, or to be elevated. But I will not be positive I am right in this Case.

Eyes, which endanger the Rupture of the Part; and those under thirty, to copious Hæmorrhages from the Nose, in Summer. Epilepsies are not very common, but vehement, when they happen; and these People are more likely to arrive at a greater Age than most others. Moreover, they are but little afflicted with cold corrosive Ulcers; and as to their Manners, they have a greater Tendency to the Savage, than to the Polite. Such are the Diseases of the Country, which principally infest the Men, when no unusual Alteration in the Seasons introduces an epidemical Disease.

As to the Women, they are contracted, and of tense Fibres, in the general, because the Waters are hard, difficult to boil, and cold. The Catamenia are not regular, but faulty, both in Quantity and Quality; add to these, that their Labours are difficult; that they are not very subject to Miscarriages; and that they cannot always give Suck to their Children, when born, because the Hardness and Intractability of the Waters dry up their Milk. Many fall into Consumptions after Lying in, the Violence of their Labour causing Ruptures of the Vessels, and Convulsions. The Children, whilst little, are subject to contract Dropsies in the Scrotum, which, as they grow up, disappear; and they arrive at Puberty very late in a City thus situated. Thus it is with Respect to the hot and cold Winds, and to the Cities subject to their Influences.

As for Cities which are exposed to those Winds which blow from betwixt the Risings of the Sun in Summer, and in Winter, or to those which blow from the opposite Quarters, they are thus affected by their Situation. Those which face the rising Sun are likely to be more healthful than others, which are either subject to the Northern Blasts, or exposed to the sultry Southern Winds, though at no greater Distance than a Furlong from each other; both, because here the Heat and Cold are more moderate, and because Waters which spring toward the rising Sun, are necessarily clear, sweet, soft, and agreeable to the Inhabitants of the Place; for the Rays of the rising Sun purify the Waters, and prevent Intemperatures in the Air, by clearing it of Vapours. The Inhabitants are, as to Complexion, well coloured and florid, unless any accidental Disease interferes with their natural Habit; their Voices are clear; their Passions are more regular, and their natural Parts and Understandings better, than those of the People who live exposed to the North; and indeed all the natural Productions are generally brought to greater Perfection.

A City, thus situated, enjoys, as it were, a perpetual Spring, in Regard to the Temperature, being neither immoderately hot, nor excessively cold; and the Diseases, affecting the Inhabitants, are neither so frequent, nor so violent as in other Places; and they are of the same Kinds with those by which Cities exposed to the warm South-winds are affected. The Women here are extremely fruitful, and have very easy Labours. Such are the Advantages of this Situation.

Cities which have an Exposure towards the Setting of the Sun, and are sheltered from the Winds which blow from the Sun Rising, but are open to the hot Winds from the South, and the cold ones from the North, have undoubtedly the most unhealthy Situation of all others. For, First, the Morning Fogs are a long Time retained, which, mixing with the Waters, render them turbid, for the Sun does not shine upon them, till it has acquired a considerable Altitude. Besides, in the Summer, the cold Breezes blow, and the Dews fall upon them. As to the rest, the Inhabitants are parched by the declining Sun, and hence they must probably become pale, and sickly; hence also they partake of all the above-mentioned Diseases, having nothing to protect them against them; their Voices are moreover likely to be deep, and hoarse, because the Air they respire, is generally impure, and unwholesome, being very little ventilated by the North-winds, which do not frequently blow upon them; and those Winds, which principally affect them, being of all others the most moist. Add to this, that the Western Winds, to which such a Situation is exposed, make the Temperature resemble that of Autumn, with Respect to the Alterations of the Weather, which happen on the same Day, for there is a great deal of Difference betwixt the Morning, and Evening Air. Thus it is in Regard to the Healthfulness and Unhealthfulness of the Winds.

I shall next consider the Waters, distinguish those which are unwholesome, from those which are wholesome, and specify the Advantages and Disadvantages which attend the Use of each Sort. For this is of great Importance to Health.

Stagnating Waters of Marshes, and Fens, must of Necessity be warm, muddy, and stinking in Summer; and, moreover, for Want of Motion, and because they are perpetually supplied by the Rains, and warmed by the Sun, they must of Course be white, bilious, and unwholesome. In the Winter, as they are frozen, and cold, and turbid with Snow and Ice, they are productive of Phlegm and Hoarsenesses. Those who drink them have their Spleens large, and much obstructed; their Bellies hard, thin, and hot; and their Shoulders, Necks,

and Faces wasted; for, as the Spleen enlarges, the Flesh dissolves; and hence they are emaciated. These have great Appetites both as to Eating and Drinking. Their Stomachs and lower Bellies are extremely dry, and hence they require stronger Vomits and Purges; and this is habitual to them both in the Summer and Winter. They are subject to frequent and fatal Dropsies; and, during the Summer, to Dysenteries, Diarrhoeas, and very chronical Quartans, which, as they continue long, in such Constitutions bring on Dropsies, by which they perish. Thus it happens to them in the Summer.

In Winter the Younger are subject to Peripneumonies, and phrenetic Disorders; the Elder, to burning Fevers, by Reason of their Costiveness. The Women contract Tumors and oedematous Disorders, incline to Sterility, have difficult Labours, bring forth large and bloated Children, and which, in their tender Years, have a Tendency to waste and become unhealthy; their Purgations after Delivery also are not well performed. The Children are much afflicted with Ruptures, and the Men, with Varices, and Ulcers in their Legs. Hence it is plain, that People with such Constitutions are not calculated for a great Age, but that they must early in Life contract the Infirmities of old Age. It is farther remarkable, that the Women frequently imagine themselves with Child, and, when the Period of Delivery approaches, the Fulness of the Belly disappears. This is caused by the hydropical Humours which are determined to the Womb. Such Waters, as the above-mentioned, I esteem improper for all Manner of Uses.

The next, in Degree of Unwholesomeness, are those which spring from Rocks, for these are necessarily hard, those whose Sources are warm, or which are impregnated with Iron, Brass, Silver, Gold, Sulphur, Alum, Asphaltus, or Nitre (*not what we call now by this Name*); for all these are produced by the Force of Heat; therefore Waters from such Strata cannot be good, but, on the Contrary, hard, and heating, difficult to pass the urinary Glands, and inclining to Costiveness. The very best are those which spring on elevated Places, and foamy Hills; for these are sweet and clear, and a very small Quantity of Wine communicates to them both Colour and Taste. [*The Author mentions this as an Instance of their Lightness and Simplicity.*] In Winter they are warm, in Summer cool, and this, because their Reservoirs are at a great Distance from the Surface of the Earth. Those, however, whose Fountains face the Sun-rising, especially its Rising in Summer, are much the best; for these are necessarily the most limpid, sweet, and light. But those which are salt, not easy to boil, and hard, are not fit to drink. There are, however, some Diseases, and Constitutions, which I shall hereafter specify, where these are properly given as a Medicine. Thus it is with Regard to these Waters.

Fountains, as I observed, afford the best Water, which face the East; next to these, such as have an Aspect towards any Point betwixt the Rising and Setting of the Sun in Summer (*reckoning towards the North*) those especially, which incline most to the East; and the third Degree of Salubrity may be allotted to those Waters, whose Sources regard the Quarters lying betwixt the Settings of the Sun in Summer and in Winter. The very worst are those which spring towards the South, or which face some Point betwixt the Rising and Setting of the Sun in Winter (*that is, betwixt the South-East and South-West*). These, however bad, are not so pernicious to Inhabitants of a Northern, as those of a Southern Climate.

As to the Use of these Waters, the following Rules are to be observed:

He that is in a perfect State of Health, need be under no Restrictions, but may use any that presents indiscriminately; but if a Person that is ill will confine himself, on that Account, to that Sort which is best adapted to the Circumstances of his Disease, he will thereby much forward his Recovery.

Those whose Bellies are hard, and inclinable to be heated, find Advantage from those Waters which are sweetest, lightest, and most limpid. On the Contrary, Waters which are very hard, not easily boiled, and somewhat salt, are better suited to others, whose Bellies are soft and moist, and abound with Phlegm; for these Waters will help to dry up the redundant Humours. Whatever Waters boil best, and soonest, are most likely to dissolve, and liquefy the Belly. But those which are heavy, and hard, and the least easy to boil, are drying and astringent. For it is a popular Error, founded on Want of Experience, to imagine, that salt Waters promote Stools, whereas, in Fact, they powerfully restrain them; and this, because, for the same Reasons that they are difficult to boil, they are also not easily subdued by the digestive Powers, and hence they produce Costiveness instead of liquefying the Belly. And this is the true State of the Case, with Respect to Fountain Waters. I will now proceed to explain the Natures of Rain and Snow Waters.

Rain Water is of all others the most light, sweet, thin, and limpid. For the Sun exhales only the lightest and thinnest Particles of Water. That this is true, is evident from the Nature of Salt, which, consisting of the most dense and heavy Particles, remain and become salt, whilst those which are most light

light and thin are attracted by the Sun, and elevated into the Atmosphere, because of their Lightness. Nor does the Sun raise Vapours from Lakes only, but it exhales them also from the Sea, and from whatever contains Moisture, with which every Thing more or less abounds. Amongst other Things, thus influenced by the Sun, is the human Body, from whence the thinnest and lightest of the Fluids are attracted, as appears by the following Instance. Let a Man walk or sit in the Sun with his Cloaths upon him; that Part of his Skin exposed to the Sun will not appear to sweat, because, before the Moisture is visible in the Shape of Sweat, the Sun causes it to evaporate; mean Time, the Parts covered by Garments, or by any other Thing, will sweat. Thus the Sun forces out the Moisture from the Body, which being defended from the Sun by something that covers it, becomes visible. But, upon retiring into the Shade, it perspires equally at the Parts covered and uncovered, because it is not then subject to the Influence of the Sun.

These Properties of Rain-water render it more subject to Putrefaction than others; and incline it to contract a disagreeable Smell, to which also the different Exhalations of which it is composed, and the various Substances with which it is impregnated, contribute greatly; add, that when these heterogeneous Particles are drawn up, and elevated, and are carried about in, and mixed with the Air, what is the most turbid, and dark, separates from the rest, and forms Mists, and Clouds, whilst the thinnest and lightest Particles remain, are digested, and, as it were, boiled by the Heat of the Sun, and are thus rendered sweet; for all Things grow sweet by Boiling. So long, therefore, as they remain dispersed, and rarefied, they are carried to the superior Part of the Atmosphere; but when they are collected together, and condensed suddenly by Winds blowing in opposite Directions, the Cloud, thus formed, breaks in that Part where it is most dense. And indeed, it is most likely to happen thus, when the Clouds, not permitted by the Winds to preserve any fixed Station, but agitated and hurried along in the Air, are suddenly dashed against another Cloud, brought by an opposite Wind; it is on this Occasion the Condensation begins in the first Vapours that meet, which is continued amongst those that succeed, till growing dense, black, and too heavy to be longer suspended, they break, and fall down in Showers. Hence it appears, that such Waters must be the best; but they require to be boiled, and filtered, otherwise they are subject to contract a disagreeable Smell, and to affect such as drink them with a Hoarseness, and Roughness of Voice.

Waters from dissolved Snow and Ice are all bad, for, after being once frozen, they never recover their original Nature; for the limpid, light, and sweet Particles are separated, and evaporate, whilst the most turbid and heavy remain. The Truth of this is evinced by the following Experiment: Take a Vessel in Winter, and fill it with a certain Measure of Water, then expose it to the Air, so that it may be frozen, the next Day place it in a Heat sufficient to thaw it, and, when it is dissolved, measure it again, and you will find it has wasted considerably; now this Waste must be of the lightest and thinnest Particles, for it is impossible the most ponderous and dense should evaporate first. It is for these Reasons that I esteem the Waters of dissolved Snow and Ice, and all that bear any Resemblance to them, the very worst of all others, for any Uses whatever.

Men who drink habitually a Mixture of all Sorts of Waters, as those of large Rivers, which receive a great many smaller in their Courses; or Waters of Lakes, into which many Currents, consisting of different Sorts of Waters, flow; or who are obliged to use Waters carried to them from a considerable Distance, are much subject to the Stone, to nephritic Disorders, to Stranguries, to ischiadic Complaints, and Tumors; for it is not probable, that one Water should exactly agree with another in Qualities; thus some will be sweet, others salt, or aluminous, whilst others are impregnated with hot Ingredients; now, when several of these are mixed together, an intestine Motion is produced, till the strongest Quality prevails; the same Quality is not, however, always most prevalent, but sometimes one, and sometimes another; and it is very possible, that the Winds may in this cause an Alteration, the North-wind increasing one Quality, and the South another, and the same may be said in Regard to the other Winds. Hence Mud and Sand must of Necessity subside to the Bottom of Vessels containing such Waters; and Men, who constantly drink them, must be subject to the Distempers above-mentioned; that these Effects are not, however, universal, I shall proceed to shew.

The Bladder of those whose Belly is naturally inclined to be soluble, and healthy, is not subject to be heated, nor is the Orifice thereof contracted; hence they make Water freely, and consequently no condensed Sediment remains in the Bladder. On the Contrary, those whose Bellies are inclined to be hot, have their Bladders necessarily affected in the same Manner, and the Orifice thereof subject to be inflamed.

Hence the Urine passes with Difficulty, and, being retained, is digested, and heated in the Bladder, where the lightest Particles are separated from the more gross, and the most pure are discharged, whilst the most thick and turbid are retained, and form a Concretion, small at first, but which afterwards increases; this, being perpetually surrounded by the Urine, adapts to itself the most dense Particles, increases, and in Time forms a Stone, which is forced upon the Orifice of the Bladder, by the Efforts to make Water, where it obstructs the Passage of the Urine, and causes violent Pain; this makes Children afflicted with the Stone handle and extend the Penis, where it seems to them that the Cause of the Obstruction is situated. That the Case is thus, is manifest from the Urine discharged by People who labour under the Stone, which is always extremely limpid, the thickest and most bilious Part remaining, and concreting. This is the most general Way of contracting the Stone. But Milk gives Children sometimes the Stone, when it is unwholesome, hot, and very bilious, for then it heats the Belly, and the Bladder, and consequently the Urine, whence a Stone is formed. I am therefore of Opinion, that Wine, very much diluted, should be preferred before such Milk for Children, because it heats and dries the Vessels less. With Respect to Females the Case is somewhat different, for their urinary Passages are shorter, and larger, so as to permit an easy Discharge of the Urine; nor are they tempted to rub the Pudenda, like Males, nor to handle the urinary Passage, which in them opens within the Pudenda. And, because the Urethra is larger, they can drink more than Males. This I take to be a just Account of Waters, or very nearly approaching it.

As to the Constitution of the Year, it may be foretold by the following Observations, whether it will be healthy, or sickly. If the Rising and Setting of the Constellations are followed by their natural and usual Effects; if the Autumn be rainy, and the Winter moderate, that is, neither too mild nor too hard; if the Spring and Summer be tempered with seasonable Showers, we may conclude that a healthy Year will succeed. But if the Winter be dry, and attended with frequent Northerly Winds, and the Spring rainy and warm with the South-wind, the Summer must necessarily produce Fevers and Inflammations of the Eyes. For on the sudden Approach of sultry Weather, at the same Time that the Earth is moistened by vernal Showers, and relaxed by the South-winds, a double Degree of Heat is excited, by the Moisture and Warmth of the Earth, and the Influence of the Sun concurring to produce it, whilst the Belly continues relaxed, and the redundant Moisture of the Brain is not yet dried up; in such a Spring the Body and whole Habit must, of Necessity, abound with Humours, so as to make very acute Fevers epidemical, especially in phlegmatic Constitutions; and to produce frequent Dysenteries, particularly in Women, and Men of moist Constitutions.

If the Rising of the Dog-star be attended with Rain and wintery Weather, and the cool Etesian Breezes (*from the North-East*) blow as usual, we may hope that the prevailing Distempers will cease, and that the Autumn will be healthy; but, if the Contrary happens, there is great Danger of Mortality amongst Women and Children, whilst old People are less in Danger, and those who recover of Fevers contract Quartans, which at last terminate in Dropsies.

If the Winter be much affected with South-winds, rainy, and mild, and the succeeding Spring rendered cold by the Northern Blasts, dry, and wintery, first, Women that happen to be pregnant, and expect to be delivered in the Spring, will be in Danger of Miscarriages; or, if these do not happen, the Children which are born will be weak and sickly, so as to die immediately, or, if they survive, to be thin, weakly, and unhealthy. Thus will such a Season affect Women. The rest will be troubled with Dysenteries, and dry Ophthalmies, and some will be subject to Defluxions from the Head upon the Lungs. Men of phlegmatic Constitutions, and Women will be afflicted with Dysenteries, the Phlegm flowing from their Brains, because of their natural Humidity. Bilious Constitutions will be subject to dry Ophthalmies, because of the Heat and Dryness of their Habits. People advanced in Years will be affected by Catarrhs, on Account of the Rarity and Relaxation of their Vessels, insomuch that some will die suddenly, whilst others will be seized with a Paraplegia either on the right, or left Side. For, when the Winter has been moist, and warm, and in Consequence of this, neither the whole Habit, nor the Vessels competently firm, if the succeeding Spring happens to be dry, cold, and much influenced by the North-winds, the Brain, when it should be relaxed by the natural Mildness of the Spring, and purged of those Humours, which cause Distillations from the Nose, and a Hoarseness, is, instead of that, braced, and contracted, so that, Summer coming on suddenly, the great Heat, and the Change from one Extreme to another, are the Causes of the above-mentioned Diseases, which, as they disappear, are succeeded by Lienteries and Dropsies, the Humidity of the Viscera not being easily dried.

If the Summer be rainy, and hot South-winds blow, which continue till the latter End of Autumn (*μικροκαρπία*), the Winter must, of Consequence, be sickly. Phlegmatic People, and those above forty, will be seized with burning Fevers, and the Bilious, with Pleurifies and Peripneumonies.

But if the Summer be dry, and much ventilated by the North-winds, and the whole Autumn rainy and much affected with Southern Blasts, the Winter will probably introduce Head-aches, and Sphacelations of the Brain, and, moreover, Hoarsenesses, Colds, Coughs, and, in some Constitutions, Consumptions. But if the Autumn be dry, and rendered cold by Northerly Winds, and there be no Rain, neither about the Rising of the Dog-star, nor of Arcturus, the Season will be favourable to phlegmatic, and moist Constitutions, and to Women, but very bad for the bilious, because it dries them excessively, and brings on dry Ophthalmies, and acute Fevers of long Continuance, and inclines some to Melancholy. For, the most humid and diluted Part of the Bile being consumed, there remains only the thickest and most acrid Part; as it happens also in the Blood; hence the Diseases above-mentioned are immediately produced, whilst this Constitution of the Season is favourable to the Phlegmatic, because they are dried by two succeeding Seasons, and arrive at the Winter without any superfluous Humidity.

If the Winter be infested with North-winds, and dry, and the succeeding Spring affected as much by South-winds, and rainy in the Summer, violent Inflammations of the Eyes will be epidemical; as will Fevers amongst Women and Children.

Whoever examines and considers these Things, will not be at a Loss to prognosticate most of those Events which these Changes naturally produce.

It imports us most of all to take especial Notice of the great and remarkable Changes of the Seasons, that we may not at such a Juncture prescribe Purging without urgent Necessity; nor make Incisions in, or cauterise the Parts about, the Abdomen, till ten Days or more are past, but ten Days are of the greatest Moment. The two Solstices are very dangerous Seasons, especially the Summer Solstice; and so are the Equinoxes, principally the Autumnal. Besides, we are to regard the Risings of the Constellations, especially those of the Dog-star and Arcturus, and to observe the Setting of the Pleiades; for these Days are particularly critical to Distempers, and either carry off the Patient, or give a favourable Turn to the Disease; and, indeed, all other Things alter their Forms and Constitutions, upon these great Changes. And thus it is with Respect to the Seasons of the Year.

My Design also is to shew how different Europe is from Asia in all Respects, and how various Nations differ from each other, in Regard to Form, and every other Circumstance. This Subject would engage me in too long a Discourse, were I to enter into Particulars: I shall therefore content myself with giving my Sentiments; as to the most essential and important Points wherein this Difference consists.

Asia remarkably differs from Europe in the Nature of Plants and Men; for all Things are produced more beautiful and large in Asia than in Europe. The Climate is more temperate than ours, and the Manners of the People more polished and civilised. The Cause of these Things is the good Temperature of the Seasons; for Asia is situated towards the East, in the Middle of the Sun's Risings, and remote from an Excess of Cold. Now, what most contributes to the Growth of Things, and Mildness of Manners, is a well-tempered Climate, in which no violent Quality predominates, but every Thing is equable and temperate. But all Parts in Asia are not in all Respects alike. But that Part which lies between the Extremes of Heat and Cold, is the happy Region which abounds with all Sorts of Fruit, which is covered with Trees, which enjoys an excellent Air, and, besides sufficient Refreshments of seasonable Rains from Heaven, it is plentifully supplied with such Waters as the Earth affords; which is neither scorched by Heat, dried for Want of Moisture, nor hardened and stiffened with Frosts, but opened and cherished by the warm Breezes of the South-wind, and moistened and refreshed by Showers, and kindly Snows. Hence it must of Necessity produce all Kinds of Fruit, seasonably and in Perfection, not only those which the Earth brings forth spontaneously, but such as are planted and sown by Man, who eats of them, and makes Use of them after having by Culture rendered them mild, and subdued their Wildness by Grafting and Transplanting. All Flocks of Sheep, and Herds of Cattle, prosper better in these Climates, than in any other Region; they bring forth Young more frequently, and feed better. The Men also are of a better Habit of Body, more graceful, of a larger Size, and better shaped, and hardly differ from one another in Form and Stature. It is probable therefore that this Climate approaches nearer than any other to the most temperate and natural Constitution. But it is impossible that Strength, Hardiness, Vigour, and personal Courage should belong to such Constitutions; nor can they be supposed to be regular in their Affections for their own, or a different Species. They are given up to sensual Enjoyments; and hence it is, that we see so many

Monsters among the very Brutes. The same may be said of Egypt and Lybia.

As for those People who inhabit the Countries to the Right of the Sun's Rising in Summer, as far as the Palus Mæotis, which separates Europe from Asia, they are more different from each other than those I have described, because of the different Changes of Seasons, and the Nature of their Country, which, as well as that of the Inhabitants, varies according to these Changes; for, where these Changes are most frequent and sensible, the Country is most savage and irregular. There you find many Mountains and Forests, and sometimes Plains and Meadows. But, wherever these Changes are least felt, the Country is more uniform, and even; and the Case is the same with Men, if they are strictly observed. The Natures of some Men bear a Resemblance to Mountains, Forests, and unwatered Deserts; others to light and well watered Soils; some to Meadows and Marshes; and others to Plains, which are dry, and naked. Seasons, which change the natural Forms of Things, are various, and as they differ from one another, their Effects are no less different.

Of the MACROCEPHALI.

I shall say nothing of those Nations where the Difference is inconsiderable, but confine myself to those among whom the Varieties, whether they proceed from Custom, or Nature, are most sensible, and begin with those People whom they call Macrocephali, because they have very long Heads, there being no Nation in the World equal to them in that Respect. Here Custom alone was first of all the Cause of that excessive Length; but now Nature acts in Conformity to Custom. These People esteem a long Head as a Mark of Distinction, and hence a Custom arose, as soon as a Child was born, while its Head was yet tender, to fashion it with their Hands to as great a Length as possible, and by Application of proper Bandage and other Arts, to destroy as much as possible the spherical Figure of the Head, and force it to increase in Length. Thus, what at first was nothing but Custom, became by Degrees Nature, which in Time no longer wanted the Assistance of Custom. The Seed comes from all Parts of the Body, and partakes of the Affections of the particular Part from whence it proceeds, whether they are sound, or distempered; if therefore the Children of bald Fathers are also generally bald, and those who have grey Eyes beget grey-eyed Children, and Parents with distorted Eyes procreate a squinting Offspring, and if this holds true with Respect to all other Imperfections of the Body, what should hinder a Macrocephalus from begetting a Macrocephalus? At this Time indeed they are not born with so long Heads, which is owing to their Negligence, in letting their antient Custom grow into Disuse. Such are my Sentiments concerning these Affairs.

Of the PHASIANS.

In Regard to the Inhabitants about Phasis, the Country is marshy, hot, moist, and abounding with Woods, and frequent and heavy Rains fall there at all Seasons. They live in Marshes, where they build their Houses with Wood and Reeds, in the midst of the Waters. They seldom exercise themselves by going to the City, or the Market, but ply here and there about their Canals, of which there is a great Number, in small Boats, which they make out of a single Trunk of a Tree. Their habitual Drink is warm, stagnating Water, which is corrupted by the Sun, and supplied by the Rains. The Phasis itself is the stillest of all Rivers, and flows the slowest. The Fruits which grow in the adjacent Parts are all effete, afford little Nourishment, never arrive at Perfection, and are insipid. The Country, moreover, is much subject to Fogs, by Reason of the neighbouring Waters. On these Accounts, the Phasians are in Person different from all Mankind. For they are of an excessive Bulk, and prodigiously bloated. Neither Joint nor Vein are to be discovered upon their Body. They are pale like those who are affected with a Jaundice. Their Voice is more deep and hoarse than that of any other People, because of the Grossness and Humidity of the Air they respire; they are excessively lazy and indolent; the Change of Seasons is insensible with them, either as to Cold or Heat; all their Winds blow from the South, except a Wind which is peculiar to them, and which is sometimes very violent, troublesome, and hot, and this they call *Cenchron*. The North-wind never reaches them, or, if it comes so far, is so weak and languid, as to be hardly sensible. And thus it is with Respect to the Natures, Differences, and Forms of the Inhabitants of Asia and Europe.

With Regard to the Effeminacy and Cowardice of the Asiatics, who are far inferior in Courage to the Europeans, but exceed them in Delicacy of Manners, the Cause hereof is to be attributed, principally, to the Seasons, which, with the People of Asia, never change from one Excess to another, either as to Heat or Cold, but are always in a State of Equality. Upon these Accounts the Inhabitants never suffer any great Trans-

ports of Mind, nor undergo very violent Changes in their Bodies, which are the two moving Causes that excite the Passions, and are more likely to render the Imagination lively and warm, than if such Excesses and Alterations were never to happen. Changes, however, there are, either greater or less, in all Things, and these stimulate the Passions, and disturb the Sedateness of the Mind. Besides these Reasons for the Cowardice of the Asiatic Nations, which appear to me very probable, another may be deduced from Custom. Most of the Asiatics are subject to the Tyranny of absolute Kings. And wherever Men of Sense are deprived of Liberty, and the Power of acting conformable to their own Inclinations, but are Slaves to others, it is Policy in them to avoid all Appearances of Courage, and to dissemble Cowardice. For, under these Circumstances, the Danger is disproportioned to the Motives of Valour. Thus they are obliged to fight, undergo Fatigues, and to die for the Sake of their Lords, and this at a Distance from their Children, Wives, and every Thing they hold dear; whilst all their Fortitude and Bravery serves only to increase the Power of their Tyrants, and rivet their own Fetters the faster, all their Recompence being Dangers and Death. Besides, such a Country must in Time become desolate, since the wisest and bravest Men equally detesting such Motives for War, and Inactivity, will abandon an arbitrary Government, so little suited to their Genius.

A sure Confirmation of this Truth is, that all the Greeks as well as Barbarians in Asia, who are their own Masters, and independent of Kings, are incomparably more warlike than the others; for they labour for themselves, they run no Hazards but on their own Account, and they reap all the Fruits of their Bravery, as they suffer all the Inconveniencies of their Cowardice. You will, however, find even amongst the Asiatics considerable Differences, some being better, and others worse, and this Variety is to be attributed to the Mutability of the Seasons, before taken Notice of. And thus is the State of Asia.

Of the SAUROMATÆ.

There is in Europe, about the Palus Mæotis, a Scythian People, called Sauromatæ, which differ from all others. Their Women mount on Horseback, draw the Bow, throw the Dart, and fight Battles, while they are Virgins. They are obliged to preserve their Virginity, till they have killed three Enemies, and are not allowed to approach their Husbands, before they have offered a certain Sacrifice by Law appointed. The married Women are discharged from mounting on Horseback, and going to War, except the whole Country is obliged to take up Arms on some very urgent Occasion. They have but one Breast, which is the left, for their Mothers take Care to burn off the Right, while they are very young, with an Instrument of Brass, made on Purpose; so that, this Breast ceasing to grow, all the Strength and Nourishment go to the right Arm and Shoulder.*

Of the other SCYTHIANS.

As for the rest of the Scythians, they are like one another in Form, but have no Resemblance to any other People. The Case is the same with the Egyptians, with this Exception, that they are as much oppressed by the excessive Heat, as the Scythians are by the extreme Cold.

What they call the Desert of Scythia, is a vast Plain, quite bare of Wood, but interspersed with Meadows, and pretty well watered. It has also large Rivers, into which the Waters of the Plains discharge themselves. It is here that those Scythians live, whom they call Nomades, because they have no Houses, but live in Waggon, the smallest of which have four Wheels, and the others six, but all covered, and closed with large woollen Carpets, and made like Houses, with three Floors one above another, which secure them under Covert from Snow and Rain, and defend them against the Violence of the Winds. These Waggon are drawn by two or three Yokes

of Oxen, which have no Horns, because of the extreme Rigour of the Cold. The Women live in these Waggon, but the Men are generally on Horseback, followed by their Sheep, Cattle, and Horses. They remain in one Place so long as it will afford them Subsistence for their Cattle, but, when that fails, they remove to another Place. They feed upon Flesh boiled, and drink the Milk of their Mares, and eat Hippocrene, as they call Cheese made of Mare's Milk. Such is their Way of living, and such are their Customs, in which, as well as in their Climate and Persons, they differ from all other People; but they all resemble each other, as do also the Egyptians. They are of all People the least fruitful, and the Country produces the fewest Animals, and those the smallest of all others. They live under the Bear and the Riphean Mountains, whence the piercing Northern Winds blow. The Sun never approaches them but towards the End of its Summer Periods, and then warms them but for a very short Time. Few Winds from the warm Quarters reach them, and those weak and of short Continuance. But they are perpetually exposed to the Northern Winds, which the Snow, Ice, and Water render extremely piercing, and which, blowing perpetually from those Mountains, render them uninhabitable. These Plains are subject to frequent Fogs, during the Day, so that they are obliged generally to respire a moist Air. Their Winter is perpetual, but their Summer continues but a few Days, and has even then but very little Influence; for these Plains are elevated, bare, and sheltered by no Mountains, but altogether exposed to the North.

The Animals of this Country are very small, because the Severity of the Seasons would destroy such as are too large to retire for Warmth into Holes made under the Earth; for there are neither Woods nor Coverts to preserve them from the Cold, nor Sun to warm them. There are no very great or sensible Changes of the Seasons, which are always equal, or have but little Variation. Hence the Inhabitants are all like each other. They eat the same Food, and wear the same Clothes, in Summer and Winter; they breathe in a thick and moist Air, and drink nothing but dissolved Water of Snow and Ice. For these Reasons they are neither remarkable for bodily Strength, nor the Faculties of the Soul; for it is impossible there should be either in Perfection, in a Climate not subject to violent Changes. Hence, the People are fat and carnos, and their Limbs moist and relaxed; their Bellies abound with Moisture, and are in general more laxative than those of other People; and it is impossible it should be otherwise in such Constitutions, inhabiting such a Country, and subject to the Influences of such a Climate. The Tendency these People have to grow fat, and the universal Smoothness of their Skins, produce an extraordinary Similitude in their Persons, insomuch that Men can scarcely either be distinguished from each other, or one Female from another, of the same Sex; and this because the Seasons being always equal and uniform, there can happen no Consumption, or Irregularity in the original Formation of the Fœtus, unless by Disease, Violence, or Accident.

That I may give abundant of Proof of their excessive Humidity, I must remark, that most of the Scythians, and all the Nomades in general, are burnt in their Shoulders, Arms, Wrists, Breasts, Hips, and Loins, on no other Account but that of their excessive Moisture, and Softness of Contexture, which enervates them to such a Degree, that they have neither Strength to draw a Bow, or throw a Dart; but after they are burnt, and the Humidity of their Joints is dried up, their Bodies grow robust, more firm and nervous, and of a better Habit. The first Thing which inclines them to be lax, and spread in Bulk, is their Neglect of swathing their Children, as they do in Egypt; and this Negligence Custom has established as a Law, with a View of enabling them to keep a firmer Seat on their Horses. A second Cause of their Relaxation, and enormous Increase in Flesh, is, their sedentary Way of Living, for the Males, so long as they are incapable of mounting on Horseback, scarce ever stir out of their Carriages,

* The Women amongst many of the Tartarian Nations are at this Day extremely warlike. Bernier, in relating a Conversation which passed betwixt him and some Ambassadors from the Kan of the Usbec Tartars, tells the following Story, which, notwithstanding some Exaggerations, proves the Valour of their Women.

Then, says he, they proceeded to commend the Strength and Valour of their Women, which they described to me quite otherwise than the Amazons; telling me very wonderful Stories of them, especially one, which would be admirable indeed, if I could relate it with a Tartarian Eloquence, as they did: They told me, that, at the Time when Aureng-Zebe made War in their Country, a Party of twenty-five or thirty Indian Horsemen came to fall upon a small Village; whilst they plundered, and tied all those whom they met with to make them Slaves, an old Woman said to them, Children, be not so mischievous, my Daughter is not far off, she will be here shortly, retreat if you be wise, you are undone if she light upon you. They laughed at the old Woman and her Advice, and continued to loiter, to tie, and to carry away herself; but they were not gone half a Mile, but this old Woman, looking often backward, made a great Outcry of Joy, perceiving her Daughter coming after her on Horseback; and presently this generous She-Tartar, mounted on a furious Horse, her Bow and Arrows hanging at her Side, called to them at a Distance, that she was yet willing to give them their Lives, if they would carry back to the Village all they had taken, and then withdraw without any Noise. The Advice of this young Woman affected them as little as that of her old Mother; but they were astonished, when they found her let fly at them, in a Moment, three or four great Arrows, which struck as many of their Men to the Ground, which forced them to fall to their Quivers also. But she kept herself at that Distance from them, that none of them could reach her. She laughed at all their Efforts, and at all their Arrows, knowing how to attack them at the Length of her Bow, and to take her Measure from the Strength of her Arm, which was of another Temper than theirs. So that after she had killed half of them with her Arrows, and put them into Disorder, she came and fell upon the rest with her Sabre in her Hand, and cut them all in Pieces.

Carriages, and walk but very little, and this on Account of their frequent Transmigrations, and rambling Way of Life. The Corpulency of their Females is surprising. The Complexion of these Scythians is usually dark, and fallow, because of the Cold, for the Sun has very little Influence upon them; the Whiteness therefore is affected by an Excess of Cold, as it is in hot Countries by an Excess of Heat, and the Sallowness of their Skins is produced in its Stead.

It is not likely that, under these Circumstances, the People should be very prolific. For the Men have no strong Inclinations to Women, because of the Moisture of their Constitutions, and the Relaxation and Coldness of their Bellies, all which tend to disable them from propagating their Species; besides, their habitual Exercise on Horseback is no inconsiderable Cause of Imbecillity. These are the Reasons for the Infecundity of the People, so far as the Men are concerned; but with Respect to the Women, their Obesity, and the Moistness of their Habit, prevent Conception; for these Reasons the Uterus cannot attract, and retain the Male Principle of Generation; the Catamenia are moreover neither sufficient as to Quantity, nor regular as to the Periods; and the Orifice of the Uterus, being obstructed by Fat, does not readily receive Impregnation from the Male. Add to these, that the Fibres of the Women are not braced by Exercise, and that their Bellies are cold and relaxed. On these Accounts the Scythians are necessarily the most unfertile of all People. That these are the Causes of their general Infecundity, is evident from their Maid-servants, who no sooner admit of a Man's Embraces, than they conceive, because their continual Exercises keep down their Flesh, and render them lean.

It is farther remarkable of these People, that many amongst them become Eunuchs, and this to such a Degree as to act, and even talk like Women, they perform all the Functions of Women, and speak like them; they are called the Impotent (*ἀνάρπισταί*). * The Inhabitants of the Country believe, that this Disease is inflicted by the Anger of the Gods; for which Reason they pay a particular Respect to, and even worship those who are thus affected, with a View of averting the same Misfortune from themselves. For my Part, I believe that this, as well as all other Distempers, proceeds from the Gods, and that there is nothing more Divine, or more human in one than in another, all Diseases coming alike from the Gods; not but every one has its proper Cause, for there is nothing in Nature that is not an Effect of some Cause. As to the Distemper which is the Subject of our present Inquiry, I shall give my Opinion how it is produced.

As the Scythians are always on Horseback, and have their lower Extremities perpetually in a depending Situation; these are much subject to receive a Flux of Humours, which renders them lame, and, as the Disorder grows inveterate, the Joint of the Thigh becomes immovable. For a Cure they have Recourse to the following Method: When they begin to be disordered, they open the Veins behind their Ears, and, when the Blood has flowed sufficiently, they fall asleep through Faintness. When they awake, some find themselves relieved, and others not in the least better. Now it seems to me, that this very Remedy destroys their Virility; for behind the Ears are Veins, which, if a Man suffers to be cut, he loses his generative Faculty, and these appear to be the very same which they open. When therefore they approach their Wives, and find their Virility fail, they are not much concerned at it the first Time, but betake themselves to Rest; but, when after several Essays they find the same Inability continues, they no longer doubt but they have offended the God, who they imagine inflicts this Punishment upon them. They then put on Women's Clothes, and make no Secret of their Infirmary; they live like Women, and do all Female Offices. But this Misfortune seldom befalls the poorer Sort, but only the Rich, and those of Distinction amongst the Scythians, because these never stir but on Horseback, whereas the Poor are less subject to it, because they walk on Foot. Now if this Disorder in particular was sent by the Gods, it would visit one Sort as well as another, or the Poor rather than the Rich, because the Poor pay much less Honour to the Gods, if it be true that the Gods take Pleasure in being honoured by Men, and that they reserve their Blessings to reward their Worshipers. Indeed, they are the Rich who offer frequent Sacrifices to them, and load their Altars with Gifts, which the Poor are unable to do, but instead of honouring the Gods are more frequently guilty of accusing their Justice, because of the unequal Distribution which they make of Riches. The Punishment for all these Crimes ought then rather to fall upon the Poor than the Rich. But, as I observed before, this Disease is of Divine Origin-

nal equally with all other Distempers, for they are all produced by natural Causes; amongst which this Distemper of the Scythians is brought upon them in the Manner I have specified; and indeed the same Cause produces the same Effects in all other Countries; for much Riding on Horseback renders a Person subject to Tumors of the lower Extremities, to Sciaticas, and Gouts, and is a great Enemy to venereal Commerce, and this it is that renders the Scythians of all Mankind the most impotent. Besides, their Custom of wearing perpetually a particular Sort of Breeches, together with their Posture on Horseback, which is almost continual, prevents them from touching and warming the generative Organs with their Hands, when they require it; hence overcome by Cold and Fatigue, they think of nothing less than venereal Enjoyments, insomuch that a Deprivation of Virility is, in their Circumstances, no great Misfortune. And this is the Case with Respect to the People of Scythia.

All the other Europeans are very different from one another, both in Person and Stature, and this is owing to the Variations of Seasons, which are great and frequent among them; for they have severe Winters, and insupportable Summers, great Rains, great Droughts, and high Winds, which produce many very considerable Changes, and these Changes must affect the tender Principles of Generation, in the original Formation of the Fœtus, which are not always alike in the same Persons, being quite different in Summer from what they are in Winter, and in a dry Season from what they are in one that is rainy. And this I imagine to be the Reason why the Europeans resemble one another less than the Asiatics, and why we find such a Difference in the Stature of People even in the very same City amongst us; because there happen many more Alterations, with Respect to the Principles of Generation, in Countries subject to those frequent Changes of Seasons, than where they are almost constantly equal. The same Reason will also account for the Difference in Manners; Rusticity, Unsociableness, Intrepidity, are produced by Climates much subject to Changes; for frequent and sudden Turns, and Alterations, in the Spirits beget Roughness of Manners; but extinguish Meekness and Delicacy. On the same Accounts I esteem the Inhabitants of Europe to be more courageous than those of Asia; for a perpetual Equality of Seasons produces Indolence; whereas frequent Changes stimulate both the Body and Mind to Action. Whence Cowardice is the Offspring of Sloth and Indolence, but Courage is maintained by Exercise and Labour; for these Reasons the European Nations are more warlike than those of Asia, because of their Government, for they are not subject to Tyrants like the Asiatics; and it may be laid down as a Maxim, to which there is no Exception, that Slaves are necessarily Cowards, as I observed above; because, by their Subjection, they contract a Meanness of Spirit; besides, it is not probable, that they should voluntarily expose themselves to Dangers, in Support of another's Tyranny. But the Europeans, who enjoy their Freedom, rush with Alacrity upon the most difficult, and dangerous Enterprizes, because the Hazards they run are purely for their own Sakes, and they themselves reap the Advantages of their Victories. In this Manner does the Constitution of a Government affect the Courage of those who live under it. And such is the general State of Asia and Europe. There are, however, in Europe Nations which differ in Stature, Person, and Strength from each other; but the Cause of this Difference proceeds from what I have explained already, and shall endeavour farther to illustrate.

All such as inhabit a Country which is mountainous, rough, elevated, and dry, and are subject to very considerable Changes of the Seasons, are consequently of a large Size, and well suited to Fatigue, and manly Exercises, and their Constitutions incline them to be rustic and savage. On the contrary, those who inhabit a low Country, abounding with Meadows, and suffocating, because exposed more to the Influence of the hot than of the cold Winds, and where they drink warm Waters, can neither be large as to Size, nor muscular, but spread into infirm Flesh, and are inclined to be fat; their Hair is black, and they are rather of a black than fair Complexion; they are moreover less subject to be phlegmatic than bilious; such Constitutions therefore are not likely to be remarkable for Courage and Strength, though the Nature of their Laws and Government may effect even this. If their Country is furnished with Rivers, to convey away the stagnating and Rain-waters, they may be ! salubrious, and of florid Countenances; but if they have no Rivers, but are obliged to drink the stagnating and stinking Waters of Ponds, they unavoidably contract Diseases of the Stomach and Spleen.

The

* This Disorder of the Scythians is mentioned by Herodotus, who informs us, it was inflicted on them by the Goddess Venus, as a Punishment, because, in some of their Wars, they pillaged her Temple. Herodotus calls it, as I remember, the *ῥέλαια νόσος*, and Longinus quotes the Expression as an Instance of a beautiful Periphrasis. The Commentators on Longinus have taken a great deal of superfluous Pains, to explain away the obvious Meaning of this, and to extract either Filthiness or Obscenity from a Passage where no such Thing could possibly be intended.

The Inhabitants of an elevated open Country, exposed to the Winds, and well watered, are large of Size, upright, are much alike, and of mild Tempers. Those who live in a Country which is barren, not well watered, open, and not subject to great Changes, are likely to have dry Habits, and tense Fibres; and their Complexions more inclinable to be yellow than black; as to their Manners and Passions, they are subject to be arrogant, and opinionated. For, wherever the Changes of Seasons are very frequent, and considerable, there we shall find the Inhabitants very different from each other, with Respect to their Persons, Manners, and Constitutions.

These are the principal Causes which operate so as to induce a Change in the Natures of Men; and to these may be added the Soil, and Waters of each particular Country where a Person is bred; for you will find, that Men generally, both in Person and Manners, are affected by the Country they inhabit. Thus, wherever the Soil is fat, soft, and furnished abundantly with Waters, which are ponderous, and consequently hot in Summer, but cold in Winter, and the Seasons are subject to no remarkable Alterations, there the Inhabitants are full of Flesh, enervated, moist, incapable of undergoing Fatigue, and of corrupted Morals; they are indolent and sleepy, have no Genius for Arts and Sciences, and are wanting in Point of Vivacity, and Quickness of Apprehension.

But whatever Country is naked, and destitute of Woods, and Coverts, barren, exposed to the Inclemencies of Winter, and the scorching Heats of the Summer, there the People have elastic Fibres, are lean, nervous, strong, and hairy; they are also ready and dexterous at any Sort of Work, and vigilant. As to their Manners and Passions, they are daring and opinionated, and participate more of Rusticity than Delicacy; they are ingenious, and quick at learning or improving Arts, and their Genius is warlike. And in the same Manner, whatever is produced by the Earth is much affected by the Parent Soil. And thus it is with Regard to the great Differences we observe in the Natures, and Persons of Men. And these Considerations will lead us into a Knowledge of many other Things, of great Importance in the Art of Healing. *Hippocrates.*

AERA. Ἀῖρα. The Greek Name for Cockle, or Darnel. See **LOLIUM**.

AERDADI. A Name given to certain Spirits by Paracelsus, which he has imagined to be Inhabitants of the Air, and says, they enjoy a very long Life. He mentions these *Aerdadi* in his *Treatise de Vita longa*, L. 4. C. 3. amongst a great many other imaginary Beings.

ÆREOLUM. A Weight of about two Grains. It is also called *Chalcus*. The Name seems derived from the Metal of which the Weight was made.

AERIFICATIO. It is the producing of Air from other Bodies, or rather converting them into Air.

AERITIS. Ἀῖριτις. The same as *Anagallis*, which see. *Gorræus.*

AEROLOGICE. That Part of Medicine which treats of Air, and explains its Properties and Uses in the animal Economy, and its Efficacy in preserving or restoring Health. It is derived from Ἀῖρ, Air, and Λόγος, a Word, Dissertation, or Treatise.

AEROMELI. Ἀερίμελι. Honey. It seems to have gained this Name from Virgil, who calls Honey *Aerial*:

*Protinus aerii Mellis, cœlestia dona
Esequar.*

Manna is also called by this Name. *Gorræus.*

AEROPHOBI. From Ἀῖρ, Air, and φόβος, Fear. Cælius Aurelianus, *Acut. Morb.* L. 3. C. 12. says, some Phrenitics are afraid of a lucid Air, others of that which is obscure. These he calls *Aerophobi*. So that this *Aerophobia* is a Symptom of a Phrenitis.

AEROSIS. An imaginary Resolution of the Blood into Vapour, supposed necessary to the Support of the vital Spirits, and said to be brought about by the Ventilation of the Air during Inspiration, in the Manner that the Flame of Fuel is kindled by blowing it.

As it does not appear there is the least Foundation for this Conceit, it would be superfluous to say more about it. Those who desire to be farther informed, may consult Charlton's *Exercitationes Physico-Anatomicæ*.

ÆRUGINOSUS. Of the Colour of Verdigrase. Green. It is frequently applied to what is discharged by Vomit of that Colour. See **VOMITUS**. And to the Bile. See **BILIS**.

ÆRUGO. Rust of any Metal, particularly of Copper, called Verdigrase. See **ÆS**.

ÆS. Copper. This is called **CUPRUM** in Latin, χαλκός in Greek, and *Venus* by the Chymists; is one of the ignoble Metals, softer than Iron, sonorous, of a red Colour, shining when polished, fusible and ductile to a very great Degree. It is sometimes found pure in the Mines, in Form of small Rods, Branches, Globules, or Masses of other Figures; but

most commonly it is contained in a Kind of Pyrites, or particular Ore. This Pyrites is in some Mines of a shining Gold-colour, but is not on that Account to be esteemed more rich, because that Colour is owing to a combustible Sulphur. Other Copper-ores are yellow, violet, or purple, and some are blackish, and mixed with Gold-coloured Sparks, or Veins, intermingled with green. Copper is seldom found alone, but is generally accompanied with some other Metals, such as Silver, Iron, or Lead, and with a large Quantity of combustible Sulphur, very difficult to be separated from it. Copper-ore is differently managed, according to the Substances mixed with it. If it abounds with Sulphur, it undergoes repeated Calcinations, till all the Sulphur is consumed. The Copper-ore of Goslar in Germany is first broke into Pieces of the Size of a Man's Fist, then burnt in an open Fire, made of Wood and Charcoal mixed together, and, being afterwards broken into smaller Pieces, it undergoes two Torrefactions more. Afterwards it is melted into a stony red Substance, called *Lapis Cupri*; which having suffered another Torrefaction, and being after that melted again, becomes black Copper; which, after a fifth Torrefaction, becomes quite free from its Sulphur, but still contains Silver. This Silver is extracted in this Manner: They mix with the Copper about four Parts of Lead, more or less, according as the Lead they use is more or less free from Silver.

These Metals thus mixed are melted together by a vehement Heat, and then poured out into Moulds, where they harden into a Kind of flat Cakes. These Cakes, covered with Charcoal in a proper Furnace, are heated with a gentle Fire, till the Lead and Silver melt, and, leaving the Copper, fall down into a Vessel set to receive them. The Copper remains unmelted like a Sponge or Honey-comb; and in this State it is termed *Æs pauperum*, and is by repeated Fusions brought to be malleable. In this last Operation, some Scoriae appear, which are specifically heavier than the Mass consisting of Copper, Silver, and Lead. These Scoriae are afterwards melted with a Mixture of Litharge, and by that Means the several Metals it contains are separated.

There are some Springs of Copper-waters, of which Vitriol is made by Boiling, and Copper may be precipitated from them, by Means of Iron, which has made some Persons imagine, that these Waters turned Iron into Copper. There is a famous Spring of this Kind near the Carpathian Mountains on the Confines of Hungary, the Waters of which corrode Iron thrown into it, and in Place thereof substitute Copper; so that a Horseshoe that has lain several Days in this Water well, when taken out, appear not to be Iron, but Copper.

The richest Copper-Mines are in Sweden and Germany. Copper is softer than Iron, but harder than Lead or Tin. It ignites or becomes red-hot in the Fire before it melts. Its specific Gravity is to that of Gold nearly as Four to Nine. When exposed to Moisture, it contracts a Rust of a green Colour, which, when handled, has a very disagreeable Smell, and an austere, sharp, nauseous Taste. A Solution of Copper by acid or fixed alkaline Salts is green, but, when made by urinous Salts, it is of a beautiful blue Colour. Filings of Copper, thrown into the Flame of a Candle, burn and emit a greenish Flame, but do not sparkle; when melted with Nitre, they flash a little. If we mix one Part of Filings of Copper with something above two Parts of corrosive Sublimate, and distil them in a glass Retort, the Quicksilver disengaged from the Salts comes over in running Mercury; but the Copper remains at the Bottom intimately united to the Salts, in Form of a yellowish or reddish Resin; sometimes transparent, sometimes opaque, which by the Flame of a Candle may be melted, and set on Fire; the Flame it gives is of a green Colour. Copper, calcined long by a very strong Fire, till it loses all its Sulphur, turns to reddish Ashes, which being exposed on a Tile to the Focus of a great Burning-glass, turns to an intensely red Glass almost opaque. If this Glass be melted on a Piece of Charcoal, in the Focus of the same Glass, it recovers its Form of Copper. From these Things we may conclude, that Copper contains a large Quantity of combustible Sulphur, though not so much as Iron, and that the metallic Substance is a red vitrifiable Earth. Copper, exposed to the Fumes of Quicksilver, or of Arsenic, acquires a Silver-colour, which is not permanent; melted with Lapis Calaminaris, or Zinc, it turns of a yellow, or Gold-colour; the different Ways of doing which are related in the Articles *Cadmia* and *Zinc*. See **CADMIUM**. See **ZINC**.

Copper, because of its great Ductility and shining Colour, is much employed in domestic Uses; but is never used inwardly as a Medicine, unless in Tincture, because this Metal, and especially its Rust, are reckoned Poisons; and any Kind of Food, or even Water, that has stood long in Copper Vessels, is pernicious. The Symptoms, produced by this Poison, are Pains in the Stomach and Intestines, excessive Vomiting, Irritations to Stool, Ulcers in the Intestines, sometimes Difficulty of Breathing, and spasmodic Contractions of the Limbs, and lastly Death itself, if the Quantity of the Poison be great.

The

1. The Remedies proper in such Cases are, first, to take a great Quantity of Milk, Oil, or melted fresh Butter; then to drink warm Water till the Patient vomits plentifully. Clysters made with Oil, Butter, or fat Broths, are likewise proper, and lastly strengthening Cordials, and a Milk-diet.

Various Recrements of Copper were prepared by the Antients, and employed in Medicines such as *Ærugo*, *Flos Æris*, *Æs Ustum*, *Squama Æris*; of which the *Flos*, *Squama*, and *Ærugo* are mentioned by Hippocrates; but the *Ærugo*, or Verdigrease, is the only Recrement now much in Use. It is a green Rust, raised on Copper-plates; the Method of making it is thus: The Husks, Stones, &c. of Grapes, being first dried, and after dipped in some strong Wine; are laid for nine or ten Days in wooden or earthen Vessels; till they begin to ferment. Then being squeezed together with both Hands, they are formed into Balls, which are put into proper earthen Pots; and Wine is poured upon them, till about half is covered; the Vessels have a straw Lid thrown over them; and are set in a Wine-cellar, where the Balls are left in Maceration for twelve or fifteen Hours; being turned every four Hours, that the Wine may penetrate every Part of them. After this the Balls are raised about a Finger's Breadth above the Surface of the Wine, and set upon wooden Bars; the Vessels are then shut again, and left in that State for ten or twelve Days more. After which Time, the Balls emit a strong and penetrating Scent, and are then fit for dissolving Copper. For this Purpose they are broken and bruised with the Hand, that the outer Part of them, which is driest, may be exactly mixed with the inner, which is still moist with Wine; then they are stratified with Copper-plates in the same Vessels upon wooden Bars, the Plates making always the lowest Stratum, and the Balls the uppermost. The Plates are four Inches long, and three broad; and, if the Copper be new, they must be previously buried for twenty-four Hours in Verdigrease, and then heated a little in the Fire. The Vessels being filled in this Manner, and shut close, are left without any farther Management, till the Verdigrease is made, which happens sooner or later, according to the Nature of the Copper. Some Copper yields its Rust in six or seven Days; some requires twelve or fifteen Days. The Verdigrease thus completely extracted, the Plates covered therewith are taken out of the Vessels, and their Edges moistened with the strongest Wine; they are then wrapped up in linnen Cloths, dipped in the same, and laid in a Wine-cellar for three Weeks. By this, the Makers tell us, the Verdigrease is nourished, and then it is separated off from the Plates with Knives, and kept for Use.

Verdigrease is used by Painters and other Artists, but is seldom prescribed inwardly by Physicians. It is often used outwardly to deterge and dry Ulcers, and to eat away fungous and callous Flesh. It is the principal Ingredient in the Unguentum Ægyptiacum. *Geoffroy*.

The Directions of Oribasius from Antillus, with Respect to the Use of Verdigrease in Plaisters, is, that it must not be added to the other Ingredients, whilst boiling, but the Verdigrease must be put into a Mortar and rubbed with Vinegar, and the other Ingredients are to be poured upon it, and mixed with it.

Verdigrease is reckoned among Emetics, by Oribasius, *L. 7. C. 26*. And amongst Cicatrifiers, *L. 14. C. 57*.

Actuarius recommends it for sicous and callous Disorders of the Eye-lids.

Verdigrease shews its acrid Quality by the Taste. It discuses, takes off, and consumes hard as well as tender Flesh. A little of it, mixed with a good Quantity of Cerate, makes an extemporary Medicine without Mordacity. *Paulus Ægineta, L. 7. C. 3*.

Oribasius says the same Thing in nearly the same Words. *L. 2. C. 1*.

The natural Verdigrease is a greenish Marchasite, like the Drops of Iron, and is found in Copper Mines, and is of no Use.

The greatest Part of the Authors who have treated of Verdigrease tell us, that it is made with Vinegar, which is not true, for the best Wine is not too good for it; and this is so true, that there is scarce any but Languedoc Wine that will make good Verdigrease. It is in and about Montpellier that the greatest Part of the Verdigrease, used in France and other Countries, is made, and it is a Commodity very difficult to make, and to hit right, although it seems as if nothing were more easy; for, if ever so little happens to be wrong, it grows greasy and black, and good for nothing, and will never come to a true Consistence.

There are some Authors, who say, that one may make Verdigrease, by putting Plates of Copper in a Crucible, with Salt, Sulphur, and Tartar, which being calcined and cooled, the Plates are converted into a very good Verdigrease; but these Operations, supposing them to be true, are at present of no Use, because all the Verdigrease we sell, is made in the fore-mentioned Manner.

We have two Sorts of Verdigrease from Montpellier, the one in Powder, the other in Cake: If it is good, it must be dry, of a beautiful deep Green, and with few white Spots. Verdigrease is a Merchandize that loses a great deal by drying; and this makes those who deal in it mix several Things with it, and render it so moist, that the Merchant loses much by the Waste, besides the Skin which covers it, for which they pay as much as if it were Verdigrease. Therefore they who use it should consider its Goodness, and not stand upon the Price; for I can affirm, that there is no Cake of Verdigrease, such as they send from Montpellier, that weighs twenty-five Pounds, but, after it is dry, has lost a third Part; so that the Verdigrease that cost twenty Pence, when soft, will be near twenty-eight Pence, when hardened.

Verdigrease is a Drug much demanded, and the Quantity of it that is used is almost incredible, not only in Physic, but by Dyers, Skinners, Hatters, Farriers, and Painters; but it is remarkable, that Verdigrease alone, ground with Oil, cannot be used; so that it is absolutely necessary for Painting, to add white Lead to it, for otherwise, instead of being green, it would be black. As for the Properties of Verdigrease, one of them is Eating off dead Flesh. They who colour Paper green, make Use of Verdigrease and white Tartar to give it that Colour.

The Apothecaries who have Occasion for Verdigrease in the afore-mentioned Compositions, and others, instead of the Powder, may dissolve it in Vinegar, and strain it through a fine Sieve, and so avoid, in reducing it to Powder, the Effects of the ill Quality of the Dust flying from it. *Pomet*.

It deterges powerfully, consumes proud Flesh, attenuates and resolves, and is used only in external Medicines; it is sharp and digesting, and cicatrises Ulcers, being mixed with Oil and Wax.

It is of good Use in the Gout, being dissolved in fair Water, and used warm to the Part.

It cures Diseases of the Eyes, and effectually takes off Pearls and Films. But before you use it for the Eyes, or for Wounds or Ulcers, you must purify it after this Manner: Powder it; and put upon it Spirit of Vinegar, six or seven Times its Weight, digest till the Vinegar is tinged very green, which decant, and cast away the Fæces; then evaporate the Vinegar in a brass Vessel, and so you will have an excellent Verdigrease at the Bottom, of which one Ounce is worth ten Ounces of the other.

Take of this fine Verdigrease, a Dram; Spirit of Sal Ammoniac, half an Ounce; Alcohol of Wine camphorated, two Ounces; mix them for a Collyrium to wash the Eyes. Take the White of an Egg, beaten well with Spring-water, four Ounces; and add to it Saccharum Saturni, ten Grains; white Vitriol, six Grains; and so many Drops of this Collyrium as may make it of an azure Colour, with this wash the Eyes two, three, or four Times a Day.

This fine prepared Verdigrease being made into an Ointment with Honey, Juices of vulnerary Herbs, Vinegar, and absterfve Sulphur of Vitriol, is applicable to weeping Wounds, Ulcers in the Joints, &c. *Lemery*.

OF VERDIGREASE CRYSTALLIZED:

The crystallized Verdigrease, or Crystals of Verdigrease, or as it is called by Merchants and Painters, calcined or distilled Verdigrease; is Verdigrease dissolved in distilled Vinegar, and afterwards filtered, evaporated, and crystallized in a Cellar. These Crystals are of some small Use in Physic, to consume dead Flesh. They are likewise used by Painters to make a green Colour, especially in Miniature Pictures.

All the Crystals of Verdigrease that are sold in Paris, come from Holland or Lyons, and are not unlike Sugar-candy, except in Colour, especially to that which is on Sticks: These Crystals, if good, are beautiful, clean, and transparent, very dry, and free from Sticks. It must be observed, that the Verdigrease which the Apothecaries make is reduced to Crystals by the Means of a Cellar, whereas that which comes to Paris is made after the Manner of Sugar-candy, as I have been informed.

I cannot tell what has induced the Merchants to call these Crystals distilled or calcined Verdigrease, seeing it is neither distilled nor calcined, but made after the Manner above-mentioned.

They likewise make Crystals of Verdigrease by dissolving Copper granulated in Spirit of Nitre; and afterwards evaporating to a Pellicle, and setting it in a Cellar to crystallize.

If you would reduce these Crystals to a Liquor, after having dried them, you must carry them back to the Cellar, to resolve them into a Fluid; and this Liquor is called by the Apothecaries and Chymists, the Liquor of Copper, or Venus, and the Crystals, the Vitriol of Venus, or Copper. *Pomet*.

OF *ÆRUGO SCOLECIA*.

There are two Sorts of *Ærugo Scolecia*; one is a Fossile, the other scititious, and made after the following Manner:

Put a Quarter of a Pint of strong White-wine Vinegar into a Mortar of Cyprian Copper, which has a Pestle of the same Metal, and rub it about till it grows viscid and ropy; then put to it a Dram of round Alum, and the like Weight of transparent fossile Salt, or the whitest solid Sea-salt, or at least Nitre; beat them well in the Sun, during the Heat of the Dog-days, till they take the Colour of Verdigrease, and become of a ropy Substance; then draw it out, and make it up in the Form of Worms, such as breed on Rose Bushes, and keep it for Use. It acquires the more Virtue, with a very fine Colour, if two Thirds of stale Urine be mixed with one of Vinegar, and the rest managed as before. Some take their *Ærugo Rasilis* that was spoiled or damaged in working, and make it up with Gum, and sell it; but have a Care of the Cheat. The Goldsmiths also make a Sort of Verdigrease, to solder Gold, of a Boy's Urine, with a Copper Mortar and Pestle.

All these Sorts of Verdigrease answer the Purposes of the *Æs Ustum*, but more effectually. Among them the *Fossile Scolecia* is the most esteemed, the *Rasilis* takes the second Place, and the *Scititious* the last, which is the most biting and astringent; but the Goldsmiths Verdigrease answers to the *Rasilis*.

They are in general of an astringent and heating Nature; they eat away and attenuate Cicatrices in the Eyes, excite Tears, check phagedenic Ulcers, preserve Wounds from Inflammation; mixed with Oil and Wax, they bring Ulcers to cicatrise; boiled with Honey, they deterge foul and callous Ulcers; applied as a Collyrium (*See COLLYRIUM*) with Gum Ammoniac, they consume the Callosities of Fistulas; they help Swellings and Excreescences of the Gums; mixed with Honey, they mightily reduce the Swellings of the Eye-lids that are anointed therewith; but then, after Anointing, they are to be fomented with a Sponge dipped in warm Water; compounded with Refine of Turpentine and Copper, or Nitre, they cure the Leprosy.

Whatever Sort of Verdigrease you use, must first be burnt in the following Manner: Having broken it into very small Bits, set it over burning Coals in an earthen Pot, and stir it about till it turn to a Sort of an Ash-colour; then take it off, and when it is cool set it aside for Use. Some burn it in an earthen Pot never burnt before, but then it does not always take the same Colour. *Dioscorides. L. 5. C. 92.*

OF *ÆRUGO RASILIS*.

Ærugo Rasilis is prepared the following Ways: Put some of the strongest Vinegar into a Firkin, or such like Vessel, and set over it a Copper Pot, inverted, well scoured, and without a Vent-hole; it is best if the Pot be bellied, but a cylindrical one will serve the Turn. After ten Days, remove the Cover, and you may scrape off the Verdigrease that sticks about it. Or, hang a Copper Plate in the Vessel over the Vinegar, so as not to touch it, and after the same Space of Time scrape off the Verdigrease, or put one or more Lumps or Plates of Copper into stale Husks of Grapes that are growing sour, and turn them in like Manner. Verdigrease may also be made of Filings of Copper, or Plates on which Gold is hammered into Leaves, by sprinkling them with Vinegar, and turning them three or four Times, till they contract a Rust on all Sides. It is said, that two Sorts of Verdigrease are produced in the Mines of Cyprus; one that sticks upon the Stones which have a Mixture of Copper in them, and another Sort that in the Dog-days distils from a Cave in a Rock: The first Sort, it seems, is excellent, though but little in Quantity; the other, though plentiful and of a fine Colour, is vitious, being mixed with much stony Matter.

Verdigrease is adulterated many Ways, especially the following: Some mix with it Pumice-stone, others Marble, or Vitriol. But you may find out the Pumice-stone and Marble, by wetting your left Thumb, and with the other rubbing on it a little of the Verdigrease; for this will dissolve and run, but the Marble and Pumice-stone remain undissoluble, and with continued Rubbing and Wetting grow white. Or you may discover this Defect by biting it, for the pure Verdigrease feels smooth, without the least Roughness under the Teeth. But the Vitriol is discovered by the Fire; for if you rub a Plate of Metal, or Tile, with this vitiated Sort, and set them on hot Embers, or Coals, what is mixed with Vitriol will turn red, because Vitriol burnt naturally takes that Colour. *Dioscorides. L. 5. C. 91.*

Oribasius transcribes this literally from Dioscorides.

OF BURNT COPPER.

The *Æs Ustum*, or burnt Copper, is made of red Copper cut into Plates, and put into a Crucible with Sulphur, and a little common Salt, Stratum super Stratum, and put into a fierce Charcoal Fire; and when the Sulphur is burnt away,

and the Copper taken out, it is of an iron Colour without, and of a reddish one within, shining, and very brittle.

The *Æs Ustum*; if it be good, should be moderately thick, and of the Colour before-mentioned; and, being rubbed, should make a Red like that of Cinnabar, which it cannot do, unless some Salt be put to it. This is the Secret of the Dutch, whereby they make it better than they do in other Places.

The *Æs Ustum* is of some small Use in Physic, because it is deterfive; but they who make Use of it, make it red-hot in the Fire nine Times, and quench it as often in Linseed Oil, and, reducing it to Powder, use it for eating off dead Flesh; and they call this Powder of the *Æs Ustum* so prepared, *Crocus*, or Saffron of Copper. *Pomet.*

Good Burnt Copper is red, and, when rubbed, takes the Colour of Cinnabar; the Black is burnt too much. It is prepared of the Nails taken out of Ships that are broken up. These Nails are laid in an earthen Pot never baked, with Sulphur and Salt in equal Quantities strewed under them, and laid Stratum super Stratum. The Pot being covered, and the Lid well closed around with Potters Clay, is set in the Furnace, till it be thoroughly baked. Some, instead of Sulphur and Salt, use Alum; others burn the Nails laid in the Pot, without Salt or Sulphur, for several Days together; others, again, burn them with Sulphur only, but then the Nails are stained with a footy Colour. Some anoint the Nails with scissile Alum, and, with an Addition of Sulphur and Vinegar, burn them in an earthen Pot never baked. Lastly, others sprinkle the Nails with Vinegar, and burn them in a Copper Pot three Times over, and then lay them by.

The best Burnt Copper is made at Memphis, the next in Cyprus. It is of an astringent, drying, attenuating, refreshing, drawing, cleansing Quality, and brings Ulcers to cicatrise, wastes Excreescences on the Eyes, consumes luxuriant Flesh, and restrains spreading Ulcers. Drank in Hydromel, or taken in a Linctus, or mixed with Honey, it gives a Vommit. It is washed like the Cadmia, changing the Water four Times a Day, till no Froth arise. The Scoria, washed after the same Manner, acquires the same Virtue, but in a less Degree *Dioscorides. L. 5. C. 87.*

OF THE MOUNTAIN, OR SEA VERDIGREASE.

The Mountain or Hungarian Verdigrease, is a Sort of greenish Powder in Grains, like Sand, which is found in the Mountains of Kernaufen in Hungary, and comes from Presbourg to Poland. It is found likewise in the Mountains of Moravia; and some will have it, that what the Antients call Flowers of Brass, was made by throwing Water, or rather Wine, upon Rose Copper, whilst red, that is to say, as it comes out of the Furnace; and that this Flower, or Mountain Verdigrease, is gathered and found sticking to other Plates of cold Copper, which they place over them, in small Grains like Sand; and that this is made by Vapours which arise, when they throw Water or Wine upon the hot Copper, and that it is this which makes, what we call Rose Copper, to be so unsmooth, and to be full of little Figures. Others affirm, that this green Powder was Plates of Copper dissolved in Wine, which was made almost after the same Manner as Verdigrease; but as I know no more of it, I shall only say, that such is to be made Choice of as is dry, of a high Colour, well granulated, that is to say, like Sand, which is the Mark of natural Mountain Verdigrease, and makes the Difference betwixt that and the artificial, which some make by pulverizing Verdigrease, and putting a little white Lead amongst it.

The Verdigrease of the Mountain is of no other Use but in Painting, principally for making a Grass-Green; and therefore it is that most of the green Painting we see in Gardens is done therewith.

As it is a dear Commodity, and comes from several Parts, so there are different Sorts of it, and different Prices; therefore they who use it should regard the Qualities of it, rather than the Cheapness. *Pomet.*

OF THE FLOS *ÆRIS*.

Flos Æris Officinar. is nothing but Copper reduced to small Grains like Millet-seed; which is done by pouring cold Water upon melting Copper, which thereupon immediately flies every Way into Grains, which are collected and kept for Use. *Geoffroy.*

The *Flos Æris*, which some of the Antients called the *Offa* [*ῥήμα*] of the Nails, is best when it is friable, of a deep Yellow when rubbed, like a Grain of Millet, small, ponderous, and moderately shining; which is not intermixed with Filings of Copper, with which it is often adulterated. The Fraud is discovered by the Filings giving Way, and dilating under the Teeth. The *Flos* is obtained, when the Copper, after Fusion, runs from the Furnace to the Receiver, through the Strainers of the Pipes that belong to it: For, at that Time, the Overseers of the Works for refining of Metals pour fair Water upon it, to refrigerate it. The Metal by this sudden Check condenses, concretes, spurts, and, as it were, spues out the *Flos*. It

It has an astringent Quality, and restrains Excrefcences. It clears the Pupil of the Eye of Things which darken the Sight, but is of a very corrosive Nature. Given to the Weight of twelve Grains, it expels gross Humours. It consumes fleshy Excrefcences in the Nostrils, and in the Anus. Taken in Wine, it restrains Eruptions. The Powder of the white Sort, blown into the Ear through a Pipe, helps an inveterate Deafness; and applied with Honey, represses Tumors of the Uvula and Tonsils. *Dioscorides, L. 5. C. 88.*

Pliny takes his Account of the *Flos Æris* from Dioscorides.

Of the SQUAMA ÆRIS.

Squama Æris Officin. is little different from *Æs Ustum*, being only the Particles of burnt Copper that fly off while it is hammered. These *Squamæ*, or instead thereof, the Filings of Brass, mixed with Sulphur, and the Powder of Florentine Orrice, and wore in the Shoes, cure stinking Feet; but this Practice may be attended with great Inconvenience, for, by checking suddenly that stinking Sweat, Diseases of a worse Kind may ensue. *Geoffroy.*

The *Squama* produced in the Cyprian Copper-Works, which is thick, and goes by the Name of *Helitis*, is of a good Kind. But what comes off in the Working of white Copper, being thin, and of little Substance, is accounted of no Value. Therefore, rejecting this, we are to chuse what is thick, of a deep Yellow, and will rust with the Sprinkling of Vinegar.

It represses, attenuates, stops the Progress of eating Ulcers, suppurates, and cicatrises. Drank in Hydromel, it purges Water. Some give it made up in Meal in the Form of Pills. It has a Place also among the Collyria or Medicines for the Eyes, for it takes away the Roughness of the Eye-lid, and dries up Rheums.

The Washing of it is thus performed: Put half a Pound of dry *Squama Æris* cleaned into a Mortar with Water; stir it well about with the Hand till the *Squama* subside. Fling away what swims at the Top, and, pouring off the first Water, put in a small Glass-full [$\frac{1}{2}$ of a Pint] of Rain-water, and with your flat Hand rub the *Squama* in the Mortar, as if you would reduce it to Powder. When it begins to grow viscid, pour in now and then a little Glass of Water, till it amount to six Glasses, or half a Pint, rubbing strongly all the while. Then take the *Squama* in your Hand, and rub it well against the Side of the Mortar, and, there strongly pressing it, receive all the Moisture that comes from thence in a Box of red Copper. This is, as it were, the *Flos Squamæ*, being full of Virtue, and most effectual in Distempers of the Eyes; what is left is of little Value. However, you may continue to wash it, till it will grow no longer viscid, and then cover it with a clean Cloth, and lay it aside for two Days, after which, letting the Water that stands upon it run off, when it is sufficiently dry, keep it in a Box for Use. *Dioscorides, L. 5. C. 89.*

The most usual Medicines, prepared with Copper, are the *Green Precipitate*, described among the Preparations of Mercury, and the *Ens Veneris* of Mr. Boyle, which is made in this Manner:

Take of Colcothar, made of blue Hungarian, or Copper Vitriol, well calcined and washed, two Drams; of Sal Ammoniac, four Drams; mix them well, and sublime the Flowers three Times, by cohobating them on the *Caput Mortuum*. The Dose is from one to six Grains. These Flowers are much commended by Boyle in the Rickets, and are said to be a powerful Remedy in a virulent Gonorrhœa.

The *Tinctura Cærulea*, or *Collyrium Cæruleum*, is made from Copper, Sal Ammoniac, and Lime-water. It is used for Diseases of the Eyes, to stop Gonorrhœas, and to deterge and dry Ulcers. *Geoffroy.*

Thin Plates of Copper infused all Night in Lime-water only, or in Lime-water mixed with volatile Salt, or Spirit of Sal Ammoniac, make an admirable *Collyrium* for the Eyes, to wash with against Mists, Clouds, Films, Pearls, Suffusions, &c. *Lemery.*

The Chymists dream, that a red Sulphur is contained in Copper, called by Helmont, *Ignis Veneris*, and *Sulphur Philosophicum*, which, he says, prolongs Life. They try to extract this Sulphur for two Reasons; first, to obtain thereby a sovereign Remedy in all Diseases, and a present Anodyne in all Pains: Secondly, To deprive Copper of its red Colour, and make it a white Metal, resembling Silver. But I can find no other Sulphur in Copper, except that bituminous inflammable Substance common to all Metals, and, indeed, to all combustible mixt Bodies. In giving such large Encomiums to this Sulphur, the Chymists therefore only shew their own Ignorance, for the red Colour of Copper is owing to the Earth, not to the Sulphur contained in it; and it is perfectly vain to pretend to extract a fixed Sulphur from that Metal; for these red Tinctures are only the Copper itself divided into very small Parts, and suspended in different Menstrua, as appears by precipitating these Particles. They have likewise vainly endeavoured to rob Copper of its red Coat, as they term it; what they call white

Copper, does not owe that Colour to the Loss of its red Sulphur, but to the Addition of a white Earth, found in the fixed alkaline Salts, which they make Use of. This Becher has very well observed. *Geoffroy.*

The Solution of COPPER in distilled VINEGAR, from Boerhaave.

Take a large glass Body, cut so as to have a very wide Mouth, with an alembic Head answering to it; in this Head put thin Plates of Copper, so as to stand somewhat erect, without falling, all around the hollow Part of the Ledge. Put Vinegar into the Body; set it in a Sand-heat, put on the Head with the Copper-plates, apply a Receiver, and distil with a gentle Fire for twelve Hours, the Vinegar then comes over green, and, if the Operation is continued for a sufficient Length of Time, the whole Substance of the Copper will be dissolved. The Liquor thus procured filtered, and inspissated with a moderate Heat, acquires a green Colour, like that of an Emerald; but of a disagreeable nauseous Smell, and the very smallest Drop of it proves instantly emetic. The Plates, being dried, yield an *Ærugo*, or Flower of Copper, but not the true Verdigrise of Copper, which is made only at Montpellier, in the Manner above described.

If the common Verdigrise of the Shops be boiled in a tall Bolthead with pure distilled Vinegar, till a Tincture is extracted, and if that is poured off, and fresh Vinegar added, and boiled again, and these Operations repeated, till the last Vinegar by boiling will be tinged no longer, there will then remain a good deal of indissoluble Matter at the Bottom; and this demonstrates something is mixed with the common Verdigrise, and that it is adulterated. If all these tinged Liquors are depurated by Filtration, and are then distilled till there remains only one fourth Part, they make a strong Liquor of Copper.

From this Process, we learn the great Solubility of Copper, and the Origine of Verdigrise; and, because Copper so readily grows green with Acids, this furnishes us with a Method of discovering this Metal (which has a surprising emetic and purgative Quality) when it lies concealed in Silver. If watery, lax, sanious, virulent Ulcers are touched with this Liquor, it helps to quicken, contract, dry, and cleanse them.

The Solution of COPPER by SAL AMMONIAC.

With one Part of Filings of the purest Copper, mix three of Sal Ammoniac, pour upon it four Parts of clean Water, in a Cucurbit cut for the Purpose, and, with a moderate Fire, dry the Paste, and then suffer it to dissolve again in the Air. Repeat this Resolution and Exsiccation many Times, and you will at last obtain almost an intire Solution of the Copper. Boil this Mixture in Water, filter it, and inspissate it a little, and a blue Tincture will be procured; and if, according to Art, you bring this to crystallize, you will have some beautiful Crystals of Copper.

This Process shews how Copper and Salts act upon each other. This Liquor is the famous Anti-epileptic for Children. If a few Drops of it are given to them fasting in Mead, it operates by Stool, excites a Nausea, and has a considerable Effect upon their languid, tender Stomachs, which it stimulates, and brings away any Water, or Mucus lodged therein, and in the Intestines, and destroys Worms. By this, therefore, some bad Habits of Body, and some Kinds of Epilepsies, are cured.

The Solution of COPPER in AQUA FORTIS.

To common *Aqua Fortis*, or Spirit of Nitre, in a clean glass Vessel, add a small Quantity of very fine Filings of pure Copper. Upon this there will arise a prodigious Effervescence with red Fumes, and in an Instant the whole Liquor will acquire a beautiful green Colour. Proceed in this Manner till the last Portion thrown in will no longer increase the Greenness. When the Liquor is depurated by standing quiet, and filtered, evaporate it to one half.

Here we see the Effect of the Acid of Nitre upon Copper. This Tincture proves an Emetic in the very smallest Quantity. It kills all Insects, and hence, if it is diluted with a good Deal of Water, it expeditiously destroys Fleas, and Lice, both the common Sort, and the flat ones that breed upon the Pubes. It has the same Effect upon Ulcers as the Vinegar of Copper; but must be used with Caution.

The Solution of COPPER in AQUA REGIA.

Into *Aqua Regia*, or Spirit of Salt, throw Filings of Copper, and proceed as in the former Process, and the Effect will be just the same.

Hence it appears, that *Aqua Fortis* and *Aqua Regia* dissolve Copper alike. There is no Ground, therefore, for the Opinion of those Chymists, who, from an imaginary Diversity in them, have pretended to give the Reasons why one dissolves Gold only, and the other Silver. This certainly arises purely from the singular reciprocal Disposition of Bodies to one another, nor can we come to the Knowledge of it, but by Experiments. And for the same Reason, they argue as unreasonably concern-

ing the Resemblance of Metals, from their being dissolved by the same Menstruum. Sound Chymistry proceeds very cautiously in Things of this Nature, and is afraid of Universals, unless when collected from certain Observations.

The Solution of COPPER in a volatile ALKALI.

Upon one Dram of Filings of Copper in a clean glass Vessel, pour twelve Times as much of a good alkaline Spirit of Sal Ammoniac. Stop the Vessel, shake it about frequently, and you will have a Tincture at first of an Azure, and afterwards of a violet Colour, which will be very beautiful. Pour off the Tincture; upon the Residuum put fresh Spirit, and by this Means almost all the Copper will be gradually dissolved, and converted into a Tincture.

If Filings of Copper are moistened with three Times the Quantity of Oil of Tartar *per Deliquium*, and then digested, dried, and dissolved, and this is often repeated, and then the Matter is boiled, filtered, and inspissated, by this Means such another Liquor, but of a fixed Nature, will be obtained.

This volatile alkaline Tincture contains the Substance of the dissolved Copper. If a Person takes it fasting in a little Mead, and walks gently after it, beginning at first with three Drops, and afterwards doubling the Dose every Morning, till the fourth Time, and then repeating the last Dose for some Days, it opens, attenuates, warms, and proves an exceeding powerful and speedy Diuretic. By the Help of this alone, Boerhaave says, he cured a perfect *Ascites*, such a prodigious Discharge of Urine being excited, that it was discharged as if it ran out of an opened Cock, upon which the Integuments of the Abdomen became so loose, that they might be wrapped over one another. He then only ordered a dry restorative Regimen, and the Patient recovered perfectly, and enjoyed a good State of Health many Years after. This, as it happened in his younger Days, he says, gave him great Encouragement; but, upon trying the same Medicine afterwards in the like Cases, its Inefficacy gave a Check to his Vanity, and taught him, that Nature has a great Hand in these happy Events. He adds, I am convinced, that among the various Kinds of Dropsies, some may be cured by different Methods, and some not at all. In acid, watery, weak, cold, mucous, pituitous Disorders, the same Tincture, however, is often used with Success. The Solution of Copper, in all acid, alkaline, and compound Salts, either latent or open, appears by every Kind of Trial to be very easy; for even the expressed Oil of Olives, and the distilled Oil of Turpentine, and others, which always contain a latent Acid, will, by being digested with Copper, acquire a green Colour, and at the same Time be rendered fit for some chirurgical Uses. *Boerhaave's Chymistry.*

I have been thus particular with Respect to Copper, that no Body, whose Duty it is to be acquainted with every Part of the *Materia Medica*, may be subject to the Imputation of being ignorant of these Preparations, which Pliny casts upon the Physicians of his Age. This Author, speaking of the Recrements of Copper, says, that Physicians are not acquainted with them, few knowing them, even by Name, so far are they from understanding how Medicines ought to be prepared, which is properly the Province of Physicians. But now, instead of this, when they meet with any Thing in Books, which they have an Inclination to try, at the Hazard of the miserable Patient, they trust to the (Sepulchre) Preparers of Medicines, who corrupt them by all Manner of Adulterations, and content themselves with stale Plaisters, and Collyria, and the very Refuse of Drugs.

Every Body, who is in any Degree acquainted with the Education and Learning of our own Country Physicians, will know this Character is not in the least applicable to them. And I know many Apothecaries that have had proper Opportunities of Information, who, I am convinced, deserve no Part of this Invektive.

In the Days of Pliny, the Physicians at Rome must have been infected with the general Corruption of the Times, or else the Author must have been very malicious to those of the Profession that were his Contemporaries, perhaps on Account of some personal Enmity against one Man.

ÆSALIO. *Ἄισαλον.* The Name of a small Hawk, called also *Alerillus*, or *Smerillus*, mentioned by Aldrovandus, and by Aristotle. I don't find that any medicinal Virtues are attributed to it, nor can I tell why Castellus has inserted it. It is one of the Birds which the Jews were forbid to eat.

ÆSCHIOS. *Ἄισχος.* Deformity of the Body in general, or any particular Member. *Constantine. Castellus.*

ÆSCHRION. The Name of a Physician of the Empiric Sect. All that is farther known of him is, that he was very well versed in the *Materia Medica*, and was one of Galen's Masters, who describes a Remedy he learned from him, against the Bite of a mad Dog, which he esteems of considerable Efficacy. The Medicine is this:

Take of the Ashes of Cray-fish burnt alive, in a red Copper Pot, ten Parts, of Gentian five Parts, of Frankincense one Part. Let the Patient take a large Spoonful of this in Water forty Days together. But if Application be not made for a

Cure, till some Days after the Bite, the Dose must be doubled. At the same Time apply to the Wound a Plaister made of Pix Brutia, Opopanax, and Vinegar, compounded according to the Rate of Pix Brutia one Pound, an Italian Pint of the strongest Vinegar, and three Ounces of Opopanax. Galen says, that he very much confided in this Medicine, because not one of those who used it died. *Æschrion* burnt his Cray-fish after the Rising of the Dog-star, when the Sun was passed into Leo; and on the eighteenth Day of the Moon [the third Day after the Full Moon].

ÆSCHYNOMENOUS Plants, [of *ἄισχυνόμενος*, of *αἰσχύνομαι*, Gr. I am ashamed.] Those Plants are commonly called *Sensitive*, or *sensible* Plants, as giving some Tokens of Sense: They are such whose Frame and Constitution is so nice and tender, that on the Touch, or least Pressure of one's Hand, they will contract their Leaves and Flowers, as if sensible of the Touch. *Miller's Dictionary.*

ÆSCULAPIUS. The History of this great Physician, for such he appears to have been, is so involved in Fable and Romance, that it is impossible to extricate the Truth with any Certainty. Tully says, there were three of the Name. The first was the Son of Apollo, and the same that was held in great Veneration by the Arcadians: He was the Inventor of the Probe and Bandage.

The second *Æsculapius* was Brother to the second Mercury. This is he that is reported to have been struck with Thunder by Jupiter, and is said to lie buried at Cynosura in Peloponnesus.

The third was the Son of Arisippus and Arisone. He invented Purging, and Drawing of Teeth.

Monsieur Le Clerc is of Opinion, however, that there never was more than one *Æsculapius*, and that he was a Phenician, or rather a Nephew of Chanaan, which last he apprehends to be the same as Hermes. Or at least, if there was an *Æsculapius* amongst the Greeks, that he borrowed not only the Name, but the Character of the Phenician.

The Egyptians relate, that *Æsculapius* was taught Medicine by Hermes, whom they represent as the Inventor of the Art. And if the Account given by Sanchoniathon is true (See *Eusebius*) *Æsculapius* and Hermes were nearly related, for Misor, the Father of Hermes, had a Brother, whose Name was Siduc, or Sadoc. This last had seven Sons, called *Dioscures*, *Cabires*, or *Corybantes*, and an eighth, which was *Æsculapius*, by one of the Daughters of Saturn and Astarte. By this Genealogy, it appears, that Hermes and *Æsculapius* were first Cousins, and it renders the Egyptian Account, that *Æsculapius* learned Medicine of Hermes, the more probable. Upon the Whole, the entire Family seems to have been concerned in making Improvements in, or inventing Medicine, for the Sons of the Cabyres or Corybantes are by the same Sanchoniathon represented to have employed themselves in discovering the Virtues of Plants, and Remedies against venomous Bites.

The Oriental Authors relate, that *Æsculapius* was a Disciple of Edris, who is the same as Enoch; and the Oriental Christians have a Tradition, that Enoch, or Edris, is the same as the Hermes of the Egyptians, called *TRISMEGISTUS*.

This *Æsculapius*, according to the Accounts given of him by the Eastern Writers, gave the first Rise to Idolatry, in this Manner: After the Death of Edris, or Enoch, *Æsculapius*, by the Instigation of the Devil, made a Statue in Honour of his Master and Patron, whom he represented, holding a Branch of Althæa, or Marsh-Mallows in his Hand, and, being constantly before it, seemed to pay it extraordinary Honours. This was afterwards imitated by his superstitious Countrymen, till at last it rose to Idolatry.

This is the Sum of what is related, with respect to the Egyptian, or Phenician *Æsculapius*. The Accounts we have of the Grecian *Æsculapius* are much more ample, but equally uncertain, and perhaps more fabulous, it having been the Custom amongst the Greeks, to rob the Egyptians of their Mythology, and to disguise the allegorical Meaning with Fictions of their own.

The Mother of this *Æsculapius* was Coronis, a Daughter of Phlegias, King of the Lapithæ in Thessaly; or, according to some, Arsinoe, Daughter to Leucippus of Messenia. This Lady, being clandestinely with Child by Apollo, was delivered of her Son on a Mountain in the Territory of Epidaurus, during a Journey with her Father into Peloponnesus, where the Child was left. A Peasant of those Parts, missing a she Goat and his Dog, went in Search of them, and found the Goat giving Suck to the young *Æsculapius*, and the Dog mean While guarding them.

Others give a different Account of his miraculous Birth. They agree, that Coronis was with Child by Apollo; but say, that Apollo having discovered that the Nymph granted the same Kind of Favours to a young Arcadian, which she had bestowed on him, in a Fit of Jealousy, sent his Sister Latona, to spread a Plague in the City where his Mistress lived, of which she died. But, as she was on the Funeral Pile, the God came, and took his Son away, out of the Midst of the Flames, and conveyed him to Chiron the Centaur, who undertook the Charge of his Education. *Pindar.*

Other

Other fabulous Accounts are given of the Birth of *Æsculapius*, and many Countries dispute for the Honour of producing him, as was usual amongst the Greeks, with respect to their eminent Men. But it is agreed on all Hands, that he was bred under the Tuition of Chiron the Centaur, and that, by his Instructions, and the Assistance of his Father Apollo, he arrived at a very extraordinary Knowledge in Physic, which gained him a Place amongst the heathen Divinities, after he had rendered himself agreeable to Mankind; by curing those who stood in Need of his Assistance, of Ulcers, Wounds, Fevers, and painful Disorders, by Means of Incantations, lenient Potions, Incisions, and external Applications. It was on Account of his extraordinary Skill in all Branches of Physic, that he was chosen by the Heroes concerned in the Argonautic Expedition, to accompany them in that hazardous Enterprize.

The Greeks, much used to Exaggeration, when the Honour of any of their Countrymen is in Question, relate, that *Æsculapius* could not only recover People from dangerous Distempers, but also knew a Way of restoring Life to those that were dead; and of this they give many Instances, among which, the last was Hippolytus. Upon this, they say, Pluto made a Remonstrance to Jupiter, that, if *Æsculapius* was suffered to proceed in this Manner, the Regions under his Jurisdiction would in Time become desolate. Upon this Complaint Jupiter struck *Æsculapius* with a Thunderbolt, and with him Hippolytus, whom he had raised from the Dead; but at the Request of Apollo he was afterwards placed among the Stars by the Name of *Ophiucus*.

He left two Sons Machaon and Podalirius, of whom Homer makes honourable Mention. The Wife of *Æsculapius* was called *Epione*, or according to others *Hygeia*, or *Lamproetia*. His Daughters were *Higle*, *Panacea*, *Jaso*, *Rene*, and *Aceso*. He is also said to have had a Sister called *Eriapis*. All these are said to have been concerned in improving the medicinal Art.

After the Death of *Æsculapius*, a great Number of Temples were built in Honour of him in Greece, and the Grecian Colonies. Schulzius reckons up from Pausanias, and other Authors, sixty-three, to which People from all Parts resorted, in order to be cured of their Distempers, which were probably performed by common Means, but were attributed to the miraculous Influence of the God by the Address of his Priests.

The Romans did not fail to imitate the Greeks in every Species of Superstition and Idolatry. Accordingly they built a Temple to *Æsculapius* in the Island of Tiber, upon the following extraordinary Occasion, according to the Account Aurelius Victor gives of it.

Rome, at that Time, and the adjacent Territories, were ravaged by a Plague. Upon this Occasion an Embassy, consisting of ten, with Q. Ogulnius at their Head, was dispatched to Epidaurus, in order to invite the God *Æsculapius* to Rome. When these Ambassadors arrived at Epidaurus, as they were admiring the extraordinary Statue of *Æsculapius*, a large Serpent came from under the Altar, and passing from the Temple to the Roman Ship, went into the Apartment of Ogulnius. The Ambassadors rejoiced at this Prodigy, immediately set sail, and arrived safe at Antium with their Charge, but being detained there some Days by the Tempestuousness of the Seas, the Serpent got out of the Vessel, and lodged himself in a neighbouring Temple dedicated to *Æsculapius*, but as soon as it was calm, returned, and then the Ambassadors pursued their Voyage; but when they arrived at the Island of Tiber, the God in the Shape of a Serpent quitted the Ship, and went on Shore, where they built him a Temple, and the Plague immediately ceased.

Pliny says, this Temple was built there out of some Disrespect which the Romans had for the Art over which *Æsculapius* presided. A very childish Reason; as if that wise People would have been at the Trouble to have sent a solemn Embassy to Epidaurus for the God, in order to affront him.

Plutarch, in the Opinion of Le Clerc, has given a better Reason. This Author seems to think, that both the Temple at Rome, and the other Temples in Greece, dedicated to *Æsculapius*, were built in open and high Situations, that the Sick which resorted to them might enjoy the Advantage of a good Air.

There can be no Doubt, but that the Romans built this Temple to *Æsculapius*, at a Distance from the City, in Imitation of the Greeks. And there is a better and very obvious Reason, why the latter chose such Situations for these Temples, I mean, because they intended to prevent contagious Distempers from being brought into their Cities, by the Sick which resorted to the Priests of *Æsculapius* for their Cure, and from being bred in the close Air of a populous Place by a Concourse of diseased People.

The Statue of *Æsculapius* at Epidaurus, made by Thrasymedes, the Statuary, was remarkable for the Size, the Workmanship, and the Materials, which were Gold and Ivory.

In this he was represented sitting on a Throne, with a Staff in one Hand, and leaning with the other on the Head of a large Serpent, with a Dog at his Feet. Pausanias says, the Dog was placed there, because he guarded *Æsculapius* in his Infancy. Le Clerc rather thinks this Animal an Emblem of that Sagacity which is necessary to a Professor of the Art over which this God presides.

From the same Pausanias we learn, that he was sometimes figured holding a Pine-cone in his Hand. And that a large brown Serpent, peculiar to the Country of Epidaurus, was sacred to him. This Sort of Serpent was esteemed harmless, and some of them were always kept in his Temple at Epidaurus. In most of his Figures this Serpent is drawn twisted round the Staff he holds in his Hand.

Sometimes a Cock is placed at his Feet to represent Vigilance; sometimes an Eagle, an Emblem of Discernment or Longevity, on his right Side, and a Ram's Head on the left, which is said to be expressive of Dreams and Divinations.

Upon some Medals *Æsculapius* is accompanied by a little Figure of a Youth, clothed in a Habit which covers his Head; this, Mr. Spon says, was the Emblem of Sickness, the Object of Medicine, because amongst the Antients the Sick covered their Heads, whereas those that were in Health went bare-headed. This little Figure was called by the Names of *Telephorus*, *Aceus*, *Evamerim*, or, as Mr. Le Clerc remarks, *OB*. What the last-mentioned Author adds upon this Occasion, is too curious to be omitted. With that, therefore, I shall conclude the fabulous Accounts of *Æsculapius*.

Monsieur Patin gives an Account of a Medal struck in Honour of the Emperor Adrian (perhaps on Account of his Knowledge in Physic) where on one Side *Æsculapius* is represented accompanied with Hygeia; on the other Telephorus with this Inscription round it:

ΠΕΡΓΑ. ΕΠΙ ΚΕΦΑΛΑΙΩΝΟΣ.

And just before Telephorus the Letters *OB*. Mr. Patin explains the first Words *Pergamenorum sub Cephalione*, adding in Italics, *Telephorus*. He afterwards adds, from Pausanias, that Telephorus was a Divinity of the Pergamenians, who was so called by the Directions of an Oracle, and that some translate the Word by *Familiar Spirit* (Devin) or *Ventriloquus*. This, says Mr. Le Clerc, made me imagine that *TELEPHORUS* and *OB* were the same, having found *OB* in other Places also translated *Familiar Spirit*, or *Ventriloquus*.

Selden tells us, that the Word *OB* was usually translated *Pytho*, or *Magician*. This *OB* was a Spirit, or Demon, that gave Answers which seemed to come from the Pudenda, the Head, or the Armpits, but in a Voice so low, that it appeared to proceed from some deep Cavity, as if a dead Person spoke in a Tomb, insomuch that those who consulted it, sometimes did not hear it at all, but formed in their Imaginations what Answers they thought proper. Selden adds, See the History of *Samuel*, whose Figure was represented to Saul by a Woman, from the Pudenda of whom *OB* either spoke, or was imagined to speak. The Scripture, in the first Book of *Samuel*, Chapter 28, * calls this Woman *Pythonesis*, or *Ventriloqua*, as it is translated, a Woman who had *OB*; hence Saul addresses her thus, *Prophesy to me, I pray you, by OB*, which the Septuagint translate, *Prophesy to me by VENTRILLOQUUS*. *OB* therefore was a Spirit which was supposed to speak from the Belly.

Thus far Mr. Le Clerc, and as the Hebrew Word is *וּב*, *OB*, which in the Septuagint is translated, *ὑγαστήριον*, and our Translators render *Familiar Spirit*, I think there can be no Dispute of his being right.

Buxtorf renders the Hebrew Word *OB* by *Pytho*, one who, in giving Answers by diabolical Arts, seduces Men from God, *Levit. XIX. 31. XX. 27.* The Word also, as he observes, signifies *Bottles*, *Job XXXII. 19.* Hence *Pytho*, according to Aben Ezra, means one who uttered Oracles from a swollen Belly, as from a Bottle, whence the Person was called *ὑγαστήριον*.

I must remark farther, that there have been People in our Days, who were Masters of the Art of managing their Voice in such a Manner, as to make it in Appearance proceed from any Part about them, or even near them, and that in much such a Tone as that of *OB* described by Selden. There was a Fellow about Town about twenty-five Years ago, called the speaking Smith, who was a great Master in this Way, and who, instead of being ambitious of the Character of a Conjuror, employed this Talent in frightening Porters, Drawers, and other People, who were not acquainted with the Trick, and whom their Friends contrived to bring into the Smith's Company, on Purpose to be teased and terrified. About ten Years ago there was another who possessed this Art, though in a less Degree of Perfection. I have been several Times in his Company in the Country, where he used to travel as a Rider, for as I remember, to a Tobacconist. And a Woman who lived

X x about

* See the Passage.

† See the Septuagint.

‡ Regard not them that have *Familiar Spirits*, *וְכַחֲשֵׁי*, *Obols*, neither seek after

Wizards, † A Man or Woman that hath a *Familiar Spirit* *וּב*, or that is a Wizard, shall surely be put to Death.

‡ Behold my Belly is as a Womb that hath no Vent, it is ready to burst like new Bottles *וְכַחֲשֵׁי*.

about the Country, was said to excel them both in this Way, being able to carry on a seeming Conversation betwixt several People, whom, she told the Ignorant, were her Husband and Children that had been long dead. It is not to be disputed, but these would have had it in their Power, with a little Artifice, in the Days of Ignorance, to have been esteemed conversant with familiar Spirits; and they might even have surprised a more enlightened Age, if they had been artful and designing enough to have guarded the Secret.

As to the History of *Æsculapius*, without having any Regard to the fabulous Accounts of him in the Grecian Theology, I am inclined to think he was a Phœnician, who having made very successful Searches into Nature, especially that Part of it that related to Pharmacy and Medicine, had gained great Reputation and Honour among his Countrymen.

His true original Name, I imagine, is lost to us in that, which the People that had experienced his Skill and Abilities in Physic, had given him by Way of Eminence and Distinction; for it was a Custom in the Eastern Nations, when any Person appeared among them of singular Talents, to honour him with an Appellation declarative of his Merit, after the Manner of the Agnomen among the Romans. Hence it was, that Hermes, the Restorer of the Egyptian Learning, was called *Trismegistus*, or rather by the Egyptian Name that answered that Meaning, for *Trismegistus* was the Greek Translation of the Egyptian Original; this Man's true Name was *Siphoas*, as Sincellus informs us out of Manetho. Σιφωας ὁ κτ' Ἑρμῆς.

As the Egyptians distinguished Hermes by the Name of *Trismegistus* for his great Learning, so the Phœnicians, according to the Taste of those Times (for *Æsculapius* is supposed to be cotemporary with *Trismegistus*) gave him likewise a Name of Distinction, on Account of his Skill in Physic and Medicine. They called him חשכל אב, *Haskel-ab*, the *Father of Knowledge or Skill*, which last Word, by-the-by, seems to take its Original from the Hebrew-Phœnician Word שכל, *Skel*, *Knowledge or Understanding*.

It was an usual Phrase amongst the ancient Orientals, where they would describe a Person that had been beneficial to Mankind, by some useful Invention or Discovery, to call him the *Father* of it. For Instance, this Hebrew Idiom is used in Holy Writ, with Regard to Jubal, Gen. IV. 21. where he is called *The Father of all such as handle the Organ and Harp*, from his first inventing Music. Tubalcain also, from his first Invention of fabricating Iron by Fire, was called אב עשה, *Ab Esta*, or *The Father of Fire*; from whence the Greek formed their ἑσπεριος; as the Latins did their *Vulcan* from *Tubalcain*; in like Manner the Phœnicians from the Skill in Medicine, that they found in the Person the Subject of this Enquiry, called him *Askel-ab*, the *Father of Skill* (in Medicine) which the Greeks afterwards corrupted into *Æsculapius*.

What Mr. Le Clerc in his *History of Physic* observes, that *Æsculapius* was a Phœnician, and that the Original of his Name was to be sought for there, is undoubtedly true. But I am afraid that cannot be said of the Etymology he gives of it; he derives it from Ισ Καλαπιον, *A Man of the Knife*; supposing him to be so called from the Use of the *Knife* in surgical Operations, in which Case it is much to be suspected, if the Use of the *Knife* was then so much known, as would be necessary to support the Etymology of this learned Man.

By all the fabulous Accounts of the Grecian *Æsculapius* it appears that he was a considerable Benefactor to Mankind. It remains that we endeavour to come at the Reality of his Person and Character, and to extricate Truth out of a Multitude of Fables. And in order to do this, it is reasonable to make Use of the Testimony of medicinal Writers, who, it is to be supposed, are best acquainted with what relates to the Patron of their Art. Amongst these Celsus is the first, who in his Preface says thus: As the End of Agriculture is to supply the Body with Aliment, that of Medicine is to procure it Health. No Part of the World has been without some Share of Knowledge in this Art, for the most barbarous Nations were acquainted with the Virtues of Herbs, and other obvious Remedies, for their Wounds and Diseases. However, it was cultivated in Greece more than in other Nations, not however originally, but a few Ages before it flourished among us, for *Æsculapius* is celebrated for being the first Inventor of it, who was desired, because he reduced the Science, before his Time rude and empirical, to a more regular Art.

We find something more particular with Respect to *Æsculapius* in Galen, who has in a great Measure avoided the Exaggerations usual amongst his Countrymen, though he speaks of the national Divinity of the Place where he was born.

Æsculapius, the Deity of our Country, prescribed entertaining Songs, Buffoonery, and some Sorts of Music, for such as by the too vehement Motion of the Mind had rendered the Temperament of their Body hotter than was consistent with Moderation: To others, and those not a few, he enjoined Hunting, Riding, and Exercises at Arms, and directed the Kind of Motion they were to be employed in, and the Arms in which

they were to exercise. He did not think it enough to teach in general, how the Mind, when sunk, might be raised, without ascertaining the Measure of it from the Idea of the Exercise. Galen, *de Sanit. tuenda*, L. 2. C. 8.

True Medicine forms Conjectures concerning the Nature or Constitution of the Patient, which the Generality of Physicians call *Idiosyncrasy*. But this is by all confessed to be incomprehensible; therefore all ascribe the true Art of Medicine to Apollo and *Æsculapius*. Galen, *Meth. Med.* L. 3. C. 7.

The Greeks ascribe the Invention of Arts to the Sons, or near Kindred of the Gods, by whom they were communicated. On this Account it appears, that *Æsculapius* was the Inventor of Medicine, in the Knowledge of which he was first instituted by his Father Apollo, and afterwards delivered the same to Mankind. Before his Time the Art of Healing was unknown, though the Antients had some Insight into the Virtues of Medicines and Herbs; such as Chiron, the Centaur, among the Greeks, and the Heroes under his Tuition. They had also, it seems, by what is ascribed to Aristæus, Melampus, and Polyidus, made some Experiment that Way. That the Egyptians had some Notion of other Remedies besides Herbs, seems evident enough from Homer.

Besides, the first Physicians must have learnt many Things in Surgery and manual Operation from the Opening of Carcasses, which it was the Custom to do, in order to embalm them. Some Inventions are imputed to Chance, as Couching for a Cataract to the casual Observation of a certain Goat, who, labouring under that Defect, recovered its Sight by impressing its Eye on a sharp-pointed Rush. The Use of a Clyster also, they say, is derived from the Bird Ibis, who, making the Skin of her long Neck serve instead of a Bladder, fills it with the Water of the Nile, or Sea-water, and by the Help of her Beak introduces it into her Body through the Anus. And Herodotus, the Historian, writes, that it was an antient Custom to bring out their Sick into the Street, and most frequented Places, to receive the Advice and Prescriptions of such Persons, as had laboured under the same Distempers, and had been cured; and so, by this Means, was Medicine at length established, being raised into an Art from the Multitude of Facts and Experiments. But all this while Reason was wanting to assist and perfect Experience, and *Æsculapius* alone was the first Inventor of true and rational Medicine, and such as, on all Accounts, deserved that Name. His Successors, the *Asclepiadæ*, delivered it down to Posterity, as it were, by hereditary Succession. Among them Hippocrates was the most eminent by many Degrees, and was the first among the Greeks who perfected the Art of Medicine. Galen's Introduction.

If we reflect upon the fabulous Accounts related of the Grecian *Æsculapius* above, and join with these what is said by Celsus and Galen, we may perhaps have Reason to believe the following Conjectures, in Regard to the true History of this *Æsculapius*, to be not very distant from the Truth.

He appears therefore to have been the illegitimate Son of some Lady of Distinction, who exposed him on a Mountain in the Territory of Epidaurus, to avoid the Reproaches usual on such Occasions. In this Situation he was probably found by the Means of the Dog of some Shepherd, or Goatherd, for it is usual with these sagacious Animals to apprise their Masters of any Thing uncommon that occurs, by staying near it and barking; and, if this was the Case, a very small Degree of Superstition, joined with a strong Imagination, would furnish him with a Goat for his Nurse, whilst under such a Distress.

When he was once found, it is not unlikely that his Mother might privately take Care to have him delivered to Chiron, a Man in those Days eminent for the Education of Youth.

We may very reasonably suppose that the young *Æsculapius* had very extraordinary Parts, for which a great many natural Children, both amongst the Antients and Moderns, have been remarkable, and that upon this Account his Tutor Chiron took more than ordinary Pains in the Instruction of his Pupil. Add to this that the Youth, finding he had nothing to depend on but his own Genius and Diligence, might be prompted by his Ambition to an extraordinary Application, that he might sometime make a Figure in the World, equal to that of his Fellow Students, who were Sons to People of Condition, thus supplying the Disadvantages of Birth by Industry. This Supposition will appear less chimerical, if we reflect, that those who have in all Ages made very extraordinary Progresses in Sciences, have generally been such whose Circumstances have obliged them early to take uncommon Pains.

Æsculapius, thus furnished with a Capacity, would not fail to lay hold of the Opportunities of Improvement which presented, and to pursue the Way to Eminence by the Road to which he was directed by his Genius. His favourite Study therefore being that of Physic, when he arrived at such a Degree of Knowledge in the Art, as to excel his Contemporaries in the Cure of Diseases, his Countrymen, or perhaps Chiron himself, might give him the honorary Appellation of *Æsculapius*, a Name borrowed from the Phœnician Inventor of Physic, with the

the History and Character of whom the Greeks had at that Time been made acquainted.

The Circumstances of his Birth, added to his Eminence in Medicine, would give his superstitious Countrymen an obvious Hint to call him the Son of Apollo, and a national Vanity might at last make him a God.

This appears to me the most real and genuine Account of the Greek *Æsculapius*, for I can by no Means agree with those Authors who are of Opinion that there never was such a Person amongst the Greeks. Hippocrates is said to be a Descendant from him, and a regular Pedigree is produced, by which it appears that he was the eighteenth from *Æsculapius*, inclusive. Now if this was not real, the *Aesclepiadæ* could never have been guilty of so impudent a Fiction, attended with a great many Circumstances that might have been disproved, which, however, it does not appear to have been ever attempted, even by the Physicians of the Cnidian School, who, as it seems, were no great Friends to Hippocrates, and who maintained a Spirit of Emulation against the Physicians of Cos. This Pedigree will be given with the Life of Hippocrates; mean Time it may suffice to remark that the Posterity of *Æsculapius*, by Podalirius, reigned Kings of Caria, till the Time of Theodorus the Second of that Name, who was obliged by the Heraclidæ to retire from their Country, and settle in Cos, an Island not far from Caria.

I shall end this Account of *Æsculapius* with remarking, that if the Art of Healing had not been very much advanced before the Time of Hippocrates, it would have been impossible for any one Man to have made Observations sufficient to establish those universal Rules, laid down by that extraordinary Man; Rules which, at the Distance of more than two thousand Years, are confirmed by every Case that occurs in the Practice of Physic, inasmuch that it may be truly said, that if the Writings of Hippocrates had been lost so far, that later Writers in Physic could not have borrowed his Sentiments, Medicine which, though far from being perfect, is nevertheless beneficial to the World in an eminent Degree, would have been scarce worth regarding, and of little Importance to Mankind. This I venture to affirm, because I am certain that every Physician in Europe, who is acquainted with this Author, and knows his Profession, will agree to it.

ÆSTAS. The Summer. This is too well known to want Explanation.

Some Remarks have been made on this Season by Authors, which deserve Notice.

Whence comes it that Lippitude, or Soreness of Eyes, more frequently happens in this hot and dry Season, than another? For it seems reasonable to imagine, that the natural Dryness of this Time of the Year should put a Stop to all Defluxions, and yet we are not sensible of the Benefit we might expect with Respect to Eyes, from that Constriction and Denfation which are the natural Effects of Heat. I answer, that, granting these to be Consequences of the Season, yet the extraordinary Splendor of the lucid Air, which dazzles the Sight, is very offensive and hurtful to the Eyes, which cannot be doubted, since every uncommon Degree of Whiteness is wont to disturb and dissipate the Senses. For this Reason, when we are prescribed Rest, we seek out a dark Retreat, where we may avoid all Causes of Motion. It is plain then, that the Frequency of Lippi, or People troubled with sore Eyes in the Summer, is owing to the Radiancy of the Sun-Beams. *Cassii Problem.* 16.

Diseases, which the Summer produces, are continual, burning, or tertian Fevers, Vomitings, Looseness, Pains in the Ears, Ulcers of the Mouth, cancerous Sores, especially in the Pudenda, and whatever Distempers waste a Man by Sweating. *Celsus*, L. 2. C. 1. from *Hippocrates*.

To these Distempers Aetius adds Inflammations of the Eyes. *Tetr.* 2. *Serm.* 3. *Cap.* 12.

In the Summer the Pulse beats quicker, because of the Heat of the circumambient Air. *Philaretus de Pulsibus*, *Cap.* 6.

In this Season, Rest is convenient, and a Diminution of Exercise and Aliment.

The Food ought to be of a colder Nature, and Drinking is to be indulged, and all Things done in order to refrigerate and moisten. *P. Aegineta*, L. 1. C. 53. *Oribas.* *Euporist.* L. 1. C. 10.

In Summer eat and drink often, but little at a Time, for the Body wants frequent Refreshment. For this Reason it will be convenient to make a Dinner; Flesh and Greens are proper Food. Drink ought to be very much diluted, that it may quench the Thirst, without Inflaming; cold Bathing, Meat roasted, Aliment of a cold or refrigerating Nature are to be used. *Celsus*, L. 1. C. 3.

With Respect to the Summer, it is worthy of Observation, that the Digestion is not so strong, and that the Appetites of most People are not so great as in Winter, for the very same Reasons that the Inhabitants of warm Climates eat less, and digest solid Food with more Difficulty than those of cold.

The Case seems thus: In warm Weather, and hot Climates, Heat relaxes the animal Fibres in general, and consequently impairs the Elasticity of those which form the Organs of Digestion, the unavoidable Consequence of which is, that the Appetite, and Power of changing the Aliment, that is, of Digestion, must be diminished. Hence the Inhabitants of hot Climates are weak, and People who live in the same Climate are not so strong in Summer as in Winter. In warm Countries therefore, and in Summer, Providence has provided Food suitable to the Climate and Season, I mean Fruits; and it is remarkable, that Rice, produced in such Plenty in Southern Countries, as to be the usual Food of the Inhabitants, is an Astringent, which their Situation in Regard to Laxity from Heat seems to require. These warm Climates also are well stored with Aromatics, which are known by Physicians to promote Appetite and Digestion, by increasing the Elasticity of the Fibres which compose the Organs subservient to both, and of these the Inhabitants make considerable Use.

On the Contrary, Cold contracts the animal Fibres, and increases their Elasticity; thence People during Winter are stronger, eat more, and digest better than in Summer; and hence the Northern Nations produce a Race of Men more robust, and suited to bear Fatigue, than those who live nearer the Line. Their Food, for these Reasons, consists principally of Animal Flesh, which they are enabled to digest, and Providence has not thought it necessary to furnish the cold Climates with many aromatic Vegetables, because they are of little or no Use to the Inhabitants.

It is remarkable that our own Countrymen who change this Climate for one that is very hot generally fall into some very dangerous Distemper; but we do not find the same Complaints arise from removing from a hot Country into one that is cold. The Reason appears plain from what has been said of the Effects of Heat and Cold. In the first Case, our People are obliged, by Necessity, whilst on Ship-board, to eat Flesh hardened by Salt, and rendered still harder by the Vinegar it is usual to eat with it; or else farinaceous Vegetables unfermented, both which are very difficult to digest, especially when the Organs of Digestion are perpetually growing weaker, by Reason of the Heat, and a proper Degree of strong Exercise, which in all Climates and Seasons ought to accompany strong Aliments, cannot be used. Others by Inclination pursue the same Method of Living in Jamaica or Barbadoes which they have been used to in England, without considering that the Powers of Digestion are altered.

The Case is just the Reverse, when a Man removes from a warm Country into one that is cold; for, though he is obliged by Necessity, or makes it his Choice, to live on Aliment not so easily changeable by the animal Actions, yet as the Fibres grow daily stronger as he approaches the Tropic, by Reason of the Increase of Cold, the bad Effects specified in the other Instance are prevented, at least in a considerable Degree.

Hence appears the Reasonableness of those Rules laid down by the Antients with Respect to Summer.

ÆSTATES. Freckles on the Face. *Pliny*, L. 28. C. 12. says, these are to be taken away by Calves-dung mixed with Oil, and Gum Arabic.

ÆSTHESIS. *Ἀίσθησις*. Sensation, or the Faculty or Power of Sensation. *Constantine*.

ÆSTHPHARA. Incineration, or Burning of the Flesh, or any other Part of the Body. *Castellus* from *Dorneus*.

ÆSTUARIUM. The Name of many Instruments, contrived to convey Heat to the whole, or particular Parts of the Body, in English properly called Stoves. *Blancard* explains it a Vapour-bath, which is but one Species of *Æstuarium*.

ÆSTUATIO. It signifies in some Authors the Boiling up of Liquors, which effervesce, or ferment, when mixed together. But it is not classical in this Sense.

ÆSTUS. Heat of any Sort, whether raised by Fire, Distempers, Medicines, Effervescence, or Fomentation.

ÆTAS. Age. Different Ages are subject to Distempers, which do not so frequently happen in others. Thus, according to Hippocrates, *Aph.* 24. L. 3. new-born Infants are subject to Aphthæ, or Thrushes, Pukings, Coughs, Want of Sleep, Startings in their Sleep (*Φόβου*) Inflammations of the Navel, and Running of the Ears.

It is remarkable that Celsus has translated this Passage, L. 2. C. 1. literally, except that he has omitted *Φόβου*, which I have translated as above, Starting in the Sleep. *Φόβος* signifies Fear, or the Causes of Fear, and no Distemper that I know of.

When Children arrive at the Age of breeding Teeth, they are affected with Pains and Exulcerations of their Gums, Fevers, Convulsions, Diarrhoeas, especially when they breed their Fore-teeth, which are called *Canine*. These are very dangerous, especially to those who are of a collicive Habit. *Liipp Aph.* L. 3. 25. *Celsus*, L. 2. C. 1.

In a more advanced Age, they are subject to Inflammations of the Tonsils, Distorsions of the Spine (as Celsus translates the Passage) Difficulty in Breathing, round Worms, and Ascarides, Warts, Tumors of the parotid Glands, Stranguries, King's Evil, and many other Tumors, but especially those above-mentioned. *Hipp. Aph. L. 3. 26. Celsus, L. 2. C. 1.*

I have translated *Σαρυμασπός*, Tumors of the parotid Glands, in Deference to the Judgment of Heurnius, tho' I suspect it signifies an Achor, or scald Head; it cannot signify a Satyriasis, because Children are not subject to it; the other Signification of the Word is a Leprosy, which Children are not often affected with. Now, as Children are very often troubled with scald Heads, which is something like a Leprosy, it seems not unlikely that Hippocrates may mean an Achor, especially as that is not otherwise taken Notice of in this Catalogue of Distempers to which Children are subject. Celsus omits it.

As Children approach to Puberty, they are afflicted with many of the Disorders above-mentioned, with long Fevers, and Hemorrhages from the Nose. *Hipp. Aph. L. 3. 17. Celsus, L. 2. C. 1.*

The Lives of Children are most endangered from Distempers about the fortieth Day, others at the seventh Month, others at the seventh Year, and others again at the Time of Puberty. And whatever Disorders Children are affected with, which do not cease in Men at the Time of Puberty (Celsus adds, or at the first Coition) and in Women at the Eruption of the Menstrues, are usually very obstinate, and continue a long Time. *Hippocrates, Aph. L. 3. C. 28.*

This Passage I have translated according to the Explication of Celsus, *L. 2. C. 1.*

Youth is particularly subject to Spitting of Blood, Consumptions, acute Fevers, Epilepsies, and the like Disorders. *Hipp. Aph. L. 3. 29. Celsus, L. 2. C. 1.*

They who are advanced beyond Youth are most liable to be affected with Asthmas, Pleurisies, Peripneumonies, Lethargies, Phrensies, burning Fevers, chronical Diarrheas, Cholera Morbus, Dysenteries, Lienteries, and Piles. *Hipp. Aph. L. 3. 30. Celsus, L. 2. C. 1.*

Old People are afflicted with Shortness of Breath, Coughs from Catarrhs, Stranguries, Dysuries, Pains in the Joints and Kidnies, Vertigos, Apoplexies, Cachexies, Itchings all over the Body, Want of Sleep, too much Moisture in the Intestines, Eyes, and Nose, Dimness of Sight, Glaucomas, and Thickness of Hearing. *Hippocrates, Aph. L. 3. 31.* To these Celsus adds, that such as are lean, and thin, are principally affected with Loosenesses, Distillations (Catarrhs) Pains in the Viscera, and of the Sides; but they who are fat, are more subject to acute Distempers, and Difficulties of Breathing, of which they frequently die suddenly, and which seldom happens to those that are thin. *L. 2. C. 1.*

Celsus makes also the Observations following on the different Ages:

The Differences of Age, as to Health, are thus considered with Respect to the four Seasons of the Year. Children and Youth bordering upon Childhood are in their best Health in the Spring, and are safest in the Beginning of Summer. Old Men are most vigorous in Summer and the first Part of Autumn. Winter agrees best with young Men and the Middle-aged. Winter is most prejudicial to old Age, as Summer is to Youth. *Celsus, L. 2. C. 1.*

Middle Age is the safest, because it is in no Danger from the Heat of Youth, nor the Coldness of old Age. *Celsus, L. 2. C. 1.*

Aetius lays down the following Rules for the Management of People in different Ages:

An Infant ought to be nourished by Milk, till it has acquired a Firmness; after which it may be fed with Crums of Bread in Wine mixed with Honey, sweet Wine or Milk, and, after a little while, with a poached Egg; for Food which requires Chewing is filled with Saliva in their Mouths. The Drink must be diluted Wine. When you can safely venture to give Food made of Corn (which is commonly about the twentieth Month) by Degrees, and in an artful Way disuse it to the Breast. If it falls into a Distemper after Weaning, put it to the Breast again. When the Disease is gone, use your best Care to nourish and restore it, and then set about Weaning it as before. *Aetius, Tetrabib. 1. Serm. 4. C. 28.*

Weaned Infants must be diverted and recreated all Manner of Ways, and their Aliment must be light, and of good Juice. But the Child who has a good Temperament of Body must not be suffered to drink much Wine, for, in hot and moist Bodies, Wine fills the Head with Vapours. Nor is it my Opinion that they should be furnished with cold Water; for, in hot Weather especially, and the Intervals of Eating, I allow them the Drinking of it, provided it be good.

At seven Years old let them be taught the Elements of Literature, and put into the Hands of Masters of known Mildness and Humanity. From fourteen to twenty-one is their proper Time to exercise themselves in the Study of Philosophy. They are to be forbidden the Use of Venus. Wine is to be

drank sparingly, and their Exercises are to be increased. When they have attained to Manhood, and are in full Vigour of Age, a more remiss Way of Living, and Relaxation of Regimen, with Respect to Body and Mind, agree best with them. But when natural Heat begins to lessen, and the Principle of Cold to operate on the Habit, their Exercises of Body, of what Kind soever, are to be slackened by Degrees, and their Proportion of Food by little and little is to be diminished. *Aetius, Tetrabib. 1. Serm. 4. Cap. 29.*

THE REGIMEN FOR OLD AGE.

Natural old Age is a cold and dry Temperament of Body, the Effect of Longevity. For when the essential Parts of the Body, with the native Heat, waste away by Degrees, and the Organs grow drier than is convenient for Service, both the Actions are performed in a more languid Manner, and the Animal himself sinks in Bulk, grows little, lean, and extenuated. As Dryness comes on more and more, Rugosity succeeds Leanness, with Weakness of Limbs, and a tottering Motion. Whoever then understands the Theory of Coldness and Dryness, will make a proper Physician for an old Man. He knows that these Qualities are to be corrected by such Things as heat and moisten; such are warm Baths of sweet Waters, drinking good Wine, and Aliments which warm and moisten at the same Time, and moderate Frictions with Oil in the Morning, then Walking, or Gestation, within the Bounds of Lassitude. An old Man must eat often, but little, for an Excess in Quantity hurts him much. He is allowed to eat three Times in a Day; about the third Hour let him break his Fast, on good Bread, and the finest clarified Honey. At the seventh Hour, after Friction, and such Exercises as are proper for old Men, let him wash, and sit down to Dinner.

And here let his first Dish consist of such Things as mollify the Belly, such as, Garden Sallads of Beets and Mallows, after that he may eat Sea-fish, and such as live about the Rocks; after this Meal let him repose a While, and then use some moderate Motion. At Supper let him abstain from Fish, let his Meat be of good Juice, that will not easily corrupt, such as a Pullet, or other Fowl, boiled in pure Water only, and without Sauce. Wine is very beneficial to old Men, not only as it diffuses a Warmth throughout the whole Body, but also as it purges the Serum of the Blood by Urine, which is needful for most of them, because they abound with aqueous Superfluities. *Aetius, Tetrabib. 1. Serm. 4. C. 30.*

ÆTHALE. *ἄθαιον*. Soot. It is sometimes wrote *ἄθαλον*. See **FULIGO**.

ÆTHALES. From *ἄν*, always, and *θαλάω*, to be green, a Name for the Sempervivum, Houseleek.

ÆTHER. A Word much used by natural Philosophers, to signify an extremely fine Fluid, that pervades all Bodies, of which nothing is known, not even so much as its Existence.

But the Name of *Æther* has been given to an extremely light and penetrating Fluid, made of Spirit of Wine deprived of its Phlegm by Distillation with Oil of Vitriol, of which we have the following Account in the *Philosophical Transactions*:

The *Æther* of Plants appears to be almost destitute of all gross Air, from placing it under the Receiver of the Air-pump; for, exhaust the Air ever so accurately, this *ætherial* Liquor remains unmoved, nor does it emit any Air-bubbles which immediately arise in other Liquors, and according as their Quantity of intrinsic Air is greater, so much the sooner are such Liquors put into Agitation, and emit also more Froth, and more vehement Ebullitions in Proportion to their Viscidity. Hence it follows, that this *Æther* may be preserved best (because without any Diminution) under the Receiver in Vacuo, whereas, on the contrary, exposed to the open Air, its Parts soon evaporate, and its whole Bulk vanishes.

This Experiment failed remarkably, as we learn from a Note in the *Abridgement of the Transactions*. But I am well informed it would have succeeded, if the Spirit made Use of in the Preparation of the *Æther* had been concentrated upon the Flowers of Zinc.

A little of it, poured on the Surface of the Hand, affects it with a Sense of Cold, equal to that from the Contact of Snow, and blow upon it but once or twice with your Mouth, immediately your Hand becomes dry. Beware, however, of approaching a lighted Candle with your Hand thus wet, lest it take Fire and burn you. This Experiment succeeded.

It causes such a Stridor and Hissing, being poured upon hot Water, as is frequently occasioned by a Piece of hot Iron thrown into it. Take a Lump of Sugar, let it imbibe some of this *ætherial* Liquor, and put it into a Vessel full of hot Water, the Sugar will indeed sink to the Bottom, but the *ætherial* Liquor rushing violently forth, excites a great Ebullition in the Water. If one Spoonful of this *Æther* be poured into a Copper Pot full of boiling Water, without any Sugar in it, and you approach immediately with a Candle, or lighted Paper, instantly there issues from the Water very great Lightning. The Handle of the Spoon, as well as the Tongs for holding and applying the lighted Paper, must be of a proper Length, that the

the Effusion of the *ætherial* Liquor upon the hot or boiling Water, and the Application of the lighted Candle, or Paper, may be performed at the same Time; otherwise the *Æther* is immediately dissipated, without any such Effect. There is therefore Need of an Assistant; or of both Hands, and also of a Room where Entrance may readily be given to fresh Air, proportionable to the Magnitude of the Flash of Lightning which so rarefies the Air, as to endanger the Stoppage of Respiration. This Experiment succeeded.

Hence it appears, that this *Æther* is both Fire and a very fluid Water, but so volatile that it soon evaporates, and that it is the purest Fire, inasmuch that, if kindled in a thousand Times the Quantity of cold Water, it burns unextinguishable. Therefore, if you take an earthen Vessel of any Magnitude, whose Mouth or Orifice may be one or two Yards wide, but the inferior Latitude of the Vessel may contain six hundred or six thousand Gallons of Water, the Experiment will be the same, pour on the Top but one Ounce, or a small Vial full of this *Æther*, and apply to it a lighted Wax Candle, it takes Fire immediately, burns placidly, is so far from being extinguished by the most profuse Superaffusion of common Water, that it much increases the Vehemence of the Flame, and lasts till the subtile Parts of the *Æther* are consumed and ventilated by the Flame. This Experiment should be made in a large and lofty Room, not in Danger of taking Fire.

The Sense of Touch does not manifest the least Oiliness or Fatness in this *ætherial* Liquor, notwithstanding that it is the true, natural, and only Dissolvent, or Menstruum of all Fat, Oil, Rosin, and Gum whatsoever: By Means whereof all Sorts of Fat, and every Kind of Fire or Flame is extricated by a speedy, safe, and pleasant Operation. On these Accounts it is, that this *ætherial* Liquor will not unite with any Kinds of Salts whatsoever, but all Sorts of Oils, Pitch, Turpentine, Opobalsams, Camphire, Wax, Ambergris, Sperma Ceti, Mastic, Musk, Copal, and the like, it dissolves most readily, and with the greatest Ease extracts their best Essences.

And indeed a wonderful Harmony is observable betwixt Gold and this *Æther*, even greater than between Gold and Aqua Regia; inasmuch as from hence Gold appears to approach nearer to the Nature of Oils than of Earths. If a Piece of Gold be dissolved in the best Aqua Regia, and upon the Solution, cold, be poured half an Ounce, or what Quantity you please of the *ætherial* Liquor, shake the Glass carefully, and all the Gold will pass into the *ætherial* Liquor, and the Aqua Regia, robbed of all its Gold, will presently deposit the Copper at the Bottom of the Vessel as a white Powder, which, turning of a green Colour, contains the Portion of Copper wherewith the Gold was adulterated. The *Æther* will swim like Oil on the Surface of the corrosive Waters. This Experiment deserves the utmost Attention; for here the heaviest of all Bodies, Gold, is attracted by this very light *Æther*, or (whereas the Air, which with a common Force presses alike all Bodies, is here excluded, and the *Æther* itself encompasses and touches the Surface of the Water) the Gold, by the Force of its Gravity, as by an Impulse, would descend from thence; or, lastly, this Phenomenon is owing to a certain Harmony and Similitude of both of them. This Experiment was shewn and succeeded.

Æther then is certainly the most noble, efficacious, and useful Instrument in all Chymistry and Pharmacy, *ubi enim ignis potentialis, ibi actuali non opus est*, inasmuch as Essences, and essential Oils are extracted by it immediately, without so much as the Mediation of Fire, from Woods, Barks, Roots, Herbs, Flowers, Berries, Seeds, &c. from Animals, and their Parts too. Thus from Castor, by a certain Manufacture, may be prepared an Oil, sweeter than that of Cinnamon, and also the true Oil of Saffron, and all by this particular Encheiresis, without the Help of Fire or Distillation. For an Example of our Method, take Mint, Sage, or Orange-peels, Cinnamon, &c. or all these together; cut and bottle them; pour upon them a Spoonful or two of the *ætherial* Liquor, and, after it has stood an Hour in a cold Place, fill up the Bottle with cold Water, and you shall see the essential Oil, swimming upon the Water poured upon them, easily separable by the Funnel. Of this essential Oil, one Drop only upon a Lump of Sugar manifests to the Taste, &c. the medical Virtues of the Plant, exquisitely drawn out, comprehended in this Essence, deservedly named COS, as containing the Colour, Odor, and Sapor, or Taste, of the Plant, or Plants. In like Manner the essential Oils of Exotics are easily prepared. This succeeded. It is not however a true essential Oil, but an excessive strong Tincture, which you may call the Essence.

Of the like Use it is in the animal Kingdom, where it produces an essential Oil of Phosphorus; as likewise in the mineral Kingdom, though not so immediately, because the Resolution of Earths must proceed. Moreover, it is easily proved, that the same Liquor extracts the purest Gold, or every Part of the golden System from any, or all the baser Minerals, and that this Gold, thus extricated, is by this one

Operation better and sooner purified than by Fusion of Minerals with Antimony.

This our Water is neither corrosive nor joined with apparent Corrosives; wherefore fill as many Bottles with *ætherial* Water as there are Sorts of Salts, and into the first Drop by Drop distil Oil of Vitriol; put into the second Spirit of Sea-salt; into the third, Spirit of Nitre, or of Alum, or of Sal Ammoniac prepared with Water, or the Lixivium of Tartar, or rectified Vinegar, all the Salts immediately sink to the Bottom: Besides, it is the lightest of all Liquors; for, fill any Vessel with twenty Ounces of Oil of Vitriol, the same, emptied, will contain but seven Ounces of *Æther*. It is the very Ens, or Being, most pure of Flame; wherefore neither Soot nor Ashes are ever found upon its Deflagration. This succeeded.

Thus far Dr. Frobenius; but to make this Paper more than a mere Harangue, it is absolutely necessary to subjoin two Paragraphs out of a Paper of that excellent Chymist Mr. Godfrey, Dr. Frobenius's Fellow-labourer, in these Experiments which he delivered in when this *Æther* was made public before us.

Feb. 19, 17½. That this Liquor *Ætherius* was formerly very much esteemed and enquired into, doth clearly appear by an Experiment I made formerly for my worthy Master, Esquire Boyle, by the Means of a metallic Solution, namely, by the Solution of crude Mercury united with the Phlogiston Vini, or other Vegetables, and this *Æther* swam on the Top of the Solution, which I separated per Fritorium. Note, This is what I have done formerly in Esquire Boyle's Laboratory, and Sir Isaac Newton was very well acquainted with it too; which by Reason of Shortness of Life was not brought to a full End, to do it so readily in Quantity. But when Dr. Frobenius, by Experiments on this in my Laboratory, did produce it in greater Quantity, he wanted to see how Sir Isaac Newton had gone on with it in his Book. There we saw that great Man's Application in *Fol.* 330. that he had done it *cum Ol. Vitr. & Sp. Vini*.

This of Sir Isaac Newton is the *Sp. Vini Ætherius*, only there is a Difference in the Process. The Liquor *Ætherius* is made with equal Parts in Measure, not Weight. The upper yellow Liquor is separated from the inardent sulphureous per Tritorium. The inferior Liquor is thrown away, and the superior yellow is put into a Retort to be distilled with the most gentle Heat; and the Extraction of the *ætherial* Liquid continued so far until the superior Hemisphere feels cold, and the Retort being clapped in the Hand, there is found in the Receiver a Vino-sulphureous Gas very *ætherial*. Let the Sulphur be precipitated by adding an Alkali, and gently throwing it in till all Ebullition ceases, and the Liquor will not farther strike itself against the Hand, but will strangely attract it. Then the Alkali will go to the Bottom of itself, or precipitate itself in the common Water. *Abridgement of the Philosophical Transactions, Vol. 8. P. 744. ad P. 747.*

ÆTHERIA HERBA. Eryngo. *Celsus Aurelianus.*

ÆTHES. ἄθος. From a Negative, and ἔθος, Custom, unusual, not according to Custom. The Word ἄθος is applied to the Spittle, Hippocrates, *Prædict.* L. 1. 122. but Foësius alters the Reading to ἑθος, with the greatest Appearance of Reason.

ÆTHIOPICUM CUMINUM. *Æthiopic Cumin.* See CUMINUM.

ÆTHIOPICUS LAPIS. The *Æthiopian Stone*, affirmed by Oribasius to be of more Virtue than the Hæmatites, the Melinites, the Galactites, or the Schistos. It is brought from *Æthiopia*, and is of the Colour of greenish Jasper. It is resolved into a Juice of a milky Colour, but of a biting Taste. *Oribasius, L. 15. C. 1.*

Æthiopsis, Offic. Ger. 634. Emac. 779. Chab. 435. Rail Hist. 1. 543. *Æthiopsis Multis*, J. B. 3. 315. *Æthiopsis foliis sinuosis*, C. B. Pin. 241. *Sclarea vulgaris lanuginosa, amplifolima folio*, Tourn. Inst. 179. Elem. Bot. 148. *Sclarea Æthiopica, sive Æthiopsis, laciniatis, & non laciniatis foliis*, Park. Theat. 57. *Horminum Æthiopicum incunum foliis sinuosis*, *Æthiopsis dictum*, Herm. Hort. Lugd. Bat. 318. Volck. Flor. Nor. 214. *Horminum Æthiopicum foliis sinuosis*, Hist. Oxon. 3. 322. **ÆTHIOPIAN CLARY.** *Dale's Pharmacologia.*

Æthiopsis has Leaves like those of Mullen, very hairy and thick, and standing in a Circle about the Head of the Root. The Stalk is quadrangular, thick, and rugged, like that of Baum, or the Woolly-headed Burdock, beset with many Branches. The Seeds are of the Size of bitter Vetches, and two in a Cell. It shoots forth many long, thick, and clammy tasted Roots from one Head, which blacken as they grow dry, and harden so as to look like Horns. It grows plentifully in Messenia and about Mount Ida. *Dioscorides, Lib. 4. C. 105.*

This Description is repeated Word for Word by *Oribasius, L. 11.*

It first comes up with Leaves of the Breadth of a Hand, and not much longer, and covered on both Sides with Plenty of soft Down as it were Lint, otherwise not much unlike the

common Garden-clary, channelled in some Plants, some jagged, others not. From the Midst of these shoots up a square Stalk, hairy in like Manner, and surrounded with Leaves like the former, but often lesser, and thick beset with Branches, on which at the Joints stand the Flowers in Whorles.

They consist of two Leaves, forming a close Empalement like those of common Clary, of a snowy White, one of them which is raised and gathered like a Woman's Hood, producing from its Bosom, which is concave, like the Lip of May-weed, yellow Clusters, and a Silver-coloured Pointal. The Flower-cup is oblong, cut into five Divisions, and almost hid by the Thickness of the Down. It has the stinking Smell of Archangel, or the Hedge-Nettle. The Root is fibrous; the Seeds are four in a Cell, not two only, as C. Bauhinus, and Parkinson from him, have related, like the Seeds of Clary, of a dark Brown, and triangular. It grows plentifully in Greece and Illyria. There are two Species of this Herb; one with jagged Leaves, and another whose Leaves are whole and even round the Edge. *Raii Hist. Vol. 1.*

It is cultivated in Gardens, and flowers in Summer; its Root is the Part in Use. *Dale.*

The Decoction of the Root, drank, relieves the Sciatica, Pleurisy, Spitting of Blood, and Hoarseness. It is taken with Honey in the Form of a Linctus. *Dioscorides, Lib. 4. Cap. 105.*

The same is repeated, after Dioscorides, by Paulus Aegineta, *L. 7. C. 3.* and *Dale* in his *Pharmacologia*.

Æthiops is an Ingredient in a Drosaton, against Coughs and Pleuritis, described by *Myrepsus, Sect. 8. Cap. 54.*

Pliny relates, that the Magicians boasted, that the *Æthiops* would dry up Rivers and Ponds, if only cast into them, and open every Thing that is shut at a Touch. But he laughs at these monstrous Accounts, *L. 26. C. 4.*

ÆTHIOPS MINERALIS. *Æthiops Mineral.* This Medicine takes the Name from the Colour, which is very black. It is made either with or without Fire. The Process for that made with Fire is thus:

Take an unglazed earthen Vessel that will bear the Fire, put into it what Quantity of Sulphur you please, let it melt over the Fire, and, during the Fusion, mix with it, by Means of an iron Spatula, an equal Weight of Mercury revived from Cinnabar. Set the Mixture on Fire, and when the Sulphur is burnt away, the remaining Mass, which is black, friable, and heavy, is the *Æthiops Mineral*.

The Dose of this Medicine is, according to Lemery, betwixt eight Grains and two Scruples, but it may be given in much larger Quantities. It is recommended in an Asthma, Epilepsy, Rheumatism, Venereal Disorders, and King's Evil. *Lemery.*

The *Æthiops Mineral* without Fire is made by rubbing equal Parts of crude Mercury and Flowers of Sulphur together, till they are intirely incorporated, so as the Mercury intirely disappears, in a glass Mortar, according to the Directions of the *London* and *Edinburgh Dispensatory*, but according to Wilson, in one of Iron. It requires much Labour to mix the Mercury and Sulphur intimately together, but a great deal of this may be saved by warming the Mortar over a gentle Fire, during the Trituration, for then they unite readily, and the Medicine cannot be worse for it.

The *Æthiops Mineral* does not mix with any other Substance without Difficulty. The Dose is from ten Grains to a Dram, but a much larger Quantity may be taken.

Various are the Accounts given of this Medicine by Authors. Some recommend it in all Foulnesses of the Skin, old Ulcers, and every Species of the Venereal Disease, and I think every one agrees that it is effectual in destroying Worms. Some have affirmed, that it will give a white Colour to Gold carried in the Pocket, and that a great deal of it has been found upon the Plaisters which have laid on the Ulcers of those that have been under a Course of it. One great Advantage which attends it is, that there is no Danger of a Salivation from its Use, if well prepared, but I do not think this any Evidence of its Efficacy.

But Boerhaave is of a very different Opinion with Respect to the medicinal Virtues of *Æthiops Mineral*. He affirms, it cannot enter the Lacteal Vessels, but is discharged out of the Intestines as it goes in; however, if it is attended with great good Fortune, he says, it may possibly kill Worms, and that this is all the Effect it can possibly have. He farther also throws out a Suspicion, that so ponderous and unactive a Mass may do a great deal of Mischief in the tender Intestines of Children. This great Man appeals to Reason, and his own Experience, for the Truth of what he asserts. As to Reason, it is difficult to conceive, that the intimate Union of two such penetrating Substances as Sulphur and Mercury, should make a third Body utterly unactive. And if his Experience did not furnish him with any Evidence of the Efficacy of this Medicine, he must have been very unlucky in this Instance, for it has certainly done great Services in other Hands; but to confess the Truth, it requires a long Perseve-

rance, in order to have any great Effects, except in the Case of Worms.

On the other Hand I believe, those who have been very lavish in the Praise of this Medicine, have done it without any very good Foundation, for it has the least Efficacy of all the Class of Mercurials.

Upon the Whole *Æthiops Mineral* has had the Fate of most other Medicines. When one considerable Man spoke well of it, this was sufficient to make all those concerned in the Practice of Physic, who have neither Character nor Ideas of their own, to extol it beyond all Bounds of Credibility. And the Disapprobation of another great Man, however ill founded, has been sufficient to sink it into its present Disrepute.

The Proportion of the Mercury to the Sulphur, in this Preparation, is different in different Authors. Boerhaave directs three Parts of Sulphur to two of Mercury.

Somewhat in Imitation of this is a Medicine of much greater Efficacy, described first, I believe, by Dr. Cockburn, in his Treatise on a Gonorrhœa, and now generally called

ÆTHIOPS ANTIMONIALIS. It is thus made: First flux equal Parts of Antimony and Sea-salt in a Crucible for an Hour, then let the Matter cool, break the Crucible, and knock off the Scoria, then rub equal Parts of the Regulus made in this Manner, and Mercury together, till they are incorporated. This requires more Labour than the *Æthiops Mineral*, but largely repays the Trouble by its great Efficacy, for, I believe, there are few Medicines in Use of equal Virtue. It will cure most chronical Disorders of the Skin, and is admirable in all Sorts of Obstructions. Hence it becomes serviceable in the King's Evil, and the most obstinate glandular Diseases, and many chronical Distempers that are out of the Reach of other Medicines. I do not give a great deal of Credit to Accounts that may be found dispersed in medicinal Authors of Cures performed on cancerous Patients, but I have the greatest Reason to attribute the Cure of two Tumors, that were esteemed cancerous by every Body that examined them, to a long Use of this Medicine, and Holt Waters, which in these Cases were drank at a great Distance from the Spring. In Venereal Disorders of a long Standing, I have often been a Witness of such Effects as I have not seen from any other mercurial Medicine whatever. This, like all Antimonials, will contract an emetic Quality by being exposed to the Air, which is probably owing to the Acid it imbibes. It may be given in the Quantity of a Scruple, or more in some Constitutions, but I have learnt to begin its Use in a smaller Quantity from an Instance I once saw of its proving a strong Emetic, when there was no Reason to expect such an Effect, and when the Dose was only eight Grains. The Case was that of a young Lady, who had complained some Time of shooting Pains in a Tumor of her Breast. The very same Morning another Lady took fifteen Grains of the same Medicine, and from the same Apothecary, and, as I was well informed, out of the same Vial, and, notwithstanding this, in the last Instance it had no visible Operation, though it acted with so much Violence in the first.

ÆTHNA. Rulandus and Johnson explain this, that subterraneous, invisible, and sulphureous Fire, which calcines Rocks in the Bowels of the Earth. Hence they call igneous Meteors that appear about burning Mountains in different Shapes, **ÆTHNICI**, which they seem to think the Spirits of Men.

ÆTHOLICES. *ἄθολικος*. From *ἄθω*, to inflame. Superficial Pustules of the Skin, raised by Heat. They seem to mean Boils.

ÆTHYA. *ἄθυα*. A Sea-fowl, called by the Latins *Mer-gus* or *Fulica*. *A. Coor.*

ÆTHYIA. *ἄθυια*, signifies a Mortar.

ÆTIA. *ἄττια*. The Cause of a Distemper. Hence

ÆTIOLOGIA. *ἄτιολογία*. *Ætiology*, that Part of the Theory of Physic, which explains the Causes of Diseases and their concomitant Symptoms.

ÆTITES. The *Eagle-stone*, thus distinguished by Authors:

Ætites, Aquila lapis, *Offic. Ætites, seu Aquilinus lapis*, Worm. 77. Charlt. Foss. 31. *Ætites*, Schrod. 345. Schw. 361. Kentm. 34. Aldrov. Mus. Metall. 580. *Lapis Ætites*, Boet. 375. De Laet. 114. Matth. 1389. *Ætites*, Gesn. de Lap. 10. p. 9. Geoff. Prælect. 68. *Ætites, Ochreo ferreus*, Wodw. Att. Tom. 2. P. 1. pag. 9. **EAGLE-STONE.** A Stone, big, as it were, with another Stone rattling in its Womb, of a dark, russet, or Ash-Colour, and commonly of an oval Figure. The Oriental is accounted the best. *Dale.*

The Stone *Ætites*, being shook, sounds as if it were pregnant with another Stone. Tied to the left Arm, it retains the Fœtus in those Women who are subject to miscarriage: But, in Time of Labour, it must be taken from the Arm, and tied to the Thigh, and the Woman will be delivered without Pain. Mixed with Bread, it finds out Thieves, for a Thief will never be able to swallow it, after he has chewed it. Boiled with Victuals, it is said to work the same

Fœtus,

Feat, and that a Thief cannot eat of any Thing boiled with it.

Bruised, and applied with Cyprian or Gleucine Cerate, or any other heating Composition, it is very effectual in Gouts and Palfies. *Aetius, Tetrabib. 1. Serm. 2. Cap. 32. P. 69. F.*

Dale having cited Shroder for the same Virtue which Aetius above ascribes to this Stone in retaining the Fœtus, and facilitating Labour, with this Addition, that after Delivery the Stone must immediately be removed from the Thigh, for Fear it should draw the Womb to it, subjoins the following Remarks from Amman :

The natural Effects of the *Eagle-stone* are commonly magnified on Account of the Traces of some Signature, while it is believed to be of Service in Time of hard Labour, and to facilitate Delivery. This I do not deny ; but this natural Effect of the Stone was by Galen, Pliny, and others, immediately blended and overlaid with Superstitions. For who will prove, (1) that an *Ælites* tied to the Arm prevents Miscarrying? Which too is an Effect contrary to the former. (2) That the *Ælites* has such an attractive Power, as to make the Womb fall out? Wormius, *P. 72.* and Valeriola produce their Observations as to this last. But, in my Opinion, these Observations are not well grounded. For we know by Anatomy, that the Uterus is held fast in its Situation by Ligaments formed by Nature for that very Purpose. How then can this Stone work such an Effect? Indeed, unless a Power of relaxing, or breaking these Ligaments, be ascribed to it by the forementioned Authors, we cannot admit the Observation of Valeriola, which he makes on a Woman of Valentia, unless we suppose the Uterus to be drawn out of its Place, by the violent and unskilful Hands of the Midwife, which has sometimes been the Case. And yet too many such Absurdities are inserted among anatomical Observations. (3) There is no Proof that ever this Stone discovered if Poison were mixed with any Thing, as is reported. (4) That it finds out Thieves, being pulverised and mixed in their Bread, by their Incapacity of swallowing it, is a precarious Assertion, depending on a fallible Mark, for Deglutition may be hindered by other Causes. (5) It neither procures Love, nor increases Riches, which it is said to do. (6) Therefore if we ought to speak the Truth, let us content ourselves with allowing the *Ælites* the same Virtue as the sealed Earth, in malignant Distempers, against Poisons, &c. *Dale.*

AETIUS. There appears to have been three Physicians of this Name, who all made themselves enough known to be recorded by the Learned.

The first was *Aetius Sicanus*, out of whose Writings, together with others, the Book, *de Atra Bile*, ascribed to Galen, is said to be collected. *Fabricii Biblioth. Græc.*

The Second was *Aetius* of Antioch, a Man remarkable for changing his Profession several Times, and for being a great Patron of the Arian Heresy. He was originally bred to the Cultivation of Vines, which he quitted, and took up the Trade of a Gold and Silversmith. After this he got into the Service of one Sopolis a Physician, and then being supplied with Money by a certain Armenian, he applied himself to Letters, and, upon the Credit of having been a Servant to a Physician, set up for one himself ; but changed once again his Way of Life, and entered into holy Orders, where he seems to have succeeded somewhat better than in Physic, for in or about the Year 361. we find he was made a Bishop.

This *Aetius* appears to have been extremely zealous in propagating the Arian Heresy, which he carried to a greater Length than even the Author of it himself ; it is for this Reason that he has incurred the Scandal of being an Atheist, which however must be malicious, for it is not probable that a Man who was an Atheist, would be very solicitous in establishing any Modes of Belief with Respect to the Christian Religion.

Different from this, in the Opinion of the Learned, was *Aetius* of Amida, whose Works are preserved. He is said to have lived in the latter End of the fourth, or Beginning of the fifth Century. All that we know of him for certain is, that he travelled into Egypt, where he probably studied, and into Cælo-Syria.

He was undoubtedly a Christian, as appears from two Passages in his Works. One in *Tetrabiblos 2. Serm. 4. Cap. 50.* where he gives the Method of extracting any Thing that happens to stick in the Throat. When other Ways fail, he advises the following as the last Refuge, and on which he seems to lay some Stress : Turn, says he, to the Patient and bid him attend, then say, Bone come out (if it happens to be a Bone) as Jesus Christ brought Lazarus out of the Sepulchre, and as Jonas was brought out of the Belly of the Whale. Then, laying hold of the Throat, say, Blasius the Martyr and Servant of Christ says, Either come up or go down.

The next Passage I would bring for a Proof of his being a Christian is in *Tetrabib. 4. Serm. 1. Chap. 11.* where speak-

ing of the Stings of Wasps and Bees; he says, that the venerable and vivifying Image of the Cross, engraved upon an iron Seal and pressed upon the Part stung, is of great Service, preventing all Manner of Inflammation. To this Prescription of *Aetius*, I must add, and I hope without Danger of any Imputation of Superstition; that the Remedy he advises has great Effects in the Cases he mentions, generally taking off the Pain and preventing Inflammation. But for Fear I should mislead my Readers, I must remark, that an iron Seal without the Figure of the Cross, or even the Blade of a Knife, will do as well.

These Passages prove *Aetius* a Christian, but at the same Time such a one as brings very little Credit to the Faith he professed, since a small Degree of Evidence was sufficient to influence his Belief ; for, though the Truth of the Christian Religion admits of all the Proof that a reasonable Man could require, yet these Fooleries, the Effects of a mistaken Zeal, which he seems to give Credit to, are not in the least countenanced either by Reason or Revelation.

Upon the Whole *Aetius* appears to have been a very credulous Man in many Instances, and was far from giving the Composition of Medicines which had acquired a Character, with a Design to expose them, as Dr. Friend thinks, for in the very Instances that are brought to prove this, I mean the Collyrium of Danaus, and the Antidotum Isotheos, the Author does not seem to dispute the Reality of the Virtues attributed to them, but mentions their great Price in all Appearance with a View to increase his Readers Opinion of their Value.

Notwithstanding the Credulity of *Aetius*, he is a very valuable Author, and has preserved many Things considerable with Respect to the Practice of Physic in his Collections from Authors whose Works are now lost. Of this frequent Instances will occur in the practical Part of this Work, for which Reason I shall omit taking Notice of them in this Place.

Fabricius and Friend relate, that in some Manuscripts he is stiles *Κόμης Ὀψώνιου, Comes Obsequii*, which the last-mentioned Author explains, *The chief Officer of those who used to go before the Emperor as his Attendance and Harbingers.*

His Works are at present divided into four Tetrabibli, and each of them into four Sermones, which are again subdivided into Chapters. This Division appears not to have been made by *Aetius* himself, but was probably the Work of some Copyist, that transcribed his Writings since the Time of Photius, for in his Days they were divided into sixteen Books, the Number of Sermones which the four Tetrabibli contain.

Photius says, that *Aetius* did not only make his Collections from the same Authors that Oribasius extracted his from, which he dedicates to Julian, Eustathius, and Eunapius, but also from the Therapeutic Tracts of Galen, and from Archigenes, and Rufus, and besides these from Dioscorides, Soranus, Philagrius, Philomenus, Posidonius, and some others who had made their Names famous for their Skill in Physic.

He begins his Works (says our Author) with the Virtues of simple Medicines and Aliments, which he abbreviates from Galen, and closes with the Sixteenth Book, which treats of the Diseases of Women ; to which he adds some Chapters containing Medicines to clear the Face, and cleanse the Skin, with the Preparation of Oinantharia [*Sweet Ointments made with Wine and Lilies*] and other Things of the like Kind. So the Work begins and ends ; but, to be more particular,

The First Book treats, in a summary Way, of the Nature of simple Medicines and Aliments. This is the first Sermo of the first Tetrabiblos, according to the present Division of his Works.

The Second speaks of the Virtues and Use of metallic Substances, and of Animals, both whole, and their Parts, in a compendious Manner. And this may be reckoned to contain no inconsiderable Part of the Materia Medica. This is the second Sermo of the first Tetrabiblos.

The Third Book treats of Gymnastics and its Preparatories. Then, after speaking of insensible Evacuations, he discourses largely on Phlebotomy, distinguishing the different Ways of Section, and directing the Form and Digness of the Incision, with the Time and Measure of Evacuation. He goes on to the Section of an Artery, prescribes a Medicine to stop the Bleeding of an Artery, speaks of Cupping, Scarification, and the Choice of Leeches. From thence he proceeds to treat of Cathartics, and the different Preparations of purging Wines, of purging Meads, and medicated purging Wines, of Absinthaton, Rosaton, Honey of Roses, and Oxy-mel, purging Garum, Honey, Metheglin, and Oxygarum, of emollient Broths, Milk, and purging Olives. Concerning all these he gives Directions ; and proceeds to compound Oxyporia, and different Sorts of Cathartics, to purging Loaves, and Troches. He describes the purging Medicines prepared of Aloes, and also of Salts [*Ἀλωεδάρια καὶ ἀλάτια*] with the five Hieras.

He

He prescribes Help for those who have taken Purgatives which will not work, or, on the Contrary, evacuate too much; gives his Advice concerning Emetics, shews the Virtues of Hellebore, and the Persons for whom it is proper, and who are qualified to take it; how to make Experiments of the Strength of Hellebore, and how the Patient is to prepare himself for the taking of it; of the various Uses of Hellebore, and the different Ways of administering it, and the Care that ought to be taken of those who have drank it. He proceeds to purging Epithems, and takes Notice of those Parts of our Bodies which may be purged, as the Eyes, Ears, and the rest in Order. Of Suffumigations producing the same Effect, and of Medicines evacuating the small Intestines, and the concave Part of the Liver and its Appurtenances; of the Air, Winds, and Significations of the Stars; of Waters, of Baths natural and artificial; of cold Bathing [ψυχρῶδους] of Baths of Oil [τῆς ἰσ ἰλαίου ἐμβάσιως] of pouring Water on the Face [τῇ προσώπῳ ἐκσμάτιν] of Perfusions, Injections, Irrigations, and dry Fomentations [πυρρίσιν]. Moreover the Book treats of the various Kinds of Cataplasms; of the Dropax, Pication, Sinapism, Rubification [φουγγισμῶ] and metasyneritical Remedies [μετασυνηρητικαῖς βοηθήμασιν]. This is the third Sermo of the first Tetrabiblos.

In his Fourth Book he discourses on Regimen, or the Method of preserving Health. Here he begins with the Nature of Infants, describes their Diseases, and gives Remedies. Then he prescribes a proper Regimen for all Ages and Conditions of Life; tells when we are to exchange Flesh for a thinner Diet; treats of Lassitude from Exercise, and its different Kinds; of Lassitude from Venery; of that Species which arises from no manifest Cause, and which they call *spontaneous*; of the Care we ought to take of Concoction; of Perspiration stopped, and its Cure; of burning Heats [ἰσκαύσεις] and seasonable Friction; of Indigestion, Crapula [κραυπάλως] and equal Dyscrasies [ἰσμάλως δυσκράσις]. How to know the best Temperament; gives us the Characteristics of a hot Temperament, and of others, both simple and mixed, and that not only of the whole Body, but of the Head, Brain, Belly, Lungs, Heart, Liver, and Testicles; and prescribes Remedies for all their Disorders. This is the fourth Sermo of the first Tetrabiblos.

The Fifth is a Treatise of Diseases. Here first he recommends the Study of Hippocrates, and discourses on Fevers, their Signs [σημείους] Prognostics and Diagnosticks, with their Cures, and whatever else belongs to this Branch of Medicine, in a very exact Manner. What is to be accounted the Beginning of Distempers, and that the same is threefold; what we are to understand by Paroxysm [παροξισμῶ] and Remission, the Height and Declension [ἀκμή καὶ παρακμή] of the Paroxysm, either affecting the whole Body, or some Part of it. What are the Signs of Death or Recovery to the Patient, and which of them portend quick or slow, or in a middle Way, Destruction or Delivery. Of the Signs of Pulses, and Diagnosticks by Urines, and what is to be learnt by them; of the Marks of Excrements, with the Signs and Prognosticks of Vomiting; of an Hæmorrhage from the Nose, and of the Catamenia; of the critical Signs of Sweats and Abscesses, and what may be gathered from the Spittle. That a skilful Physician will know when a Disease is past a Solution, and when it only seems to be so, and can foretel the Day and Hour when the Sick will die. He goes on to treat of general, epidemic, and pestilential Distempers, of such as, on some Occasions, are seized with Faintings, and of Lipothymies and their Causes; of Pain in the Head, Ears, and Eyes; Want of Sleep, and Dulness of Sight attending a Fever; of such as under a Fever are seized with an Hæmorrhage, and their Cure, and what Care ought to be taken of feverish Patients. Moreover, it treats of the Bladder, of Difficulty of Urine, Pains in the Loins, Exulceration of the Parts about the Os Sacrum, of the Testicles and Anus, Breakings out of Pustules [ἰσκαθίματα] over the whole Body, or some Part thereof; of Tremors and Convulsions, and gives a Detail of Medicines which are both agreeable and effectual. This is the first Sermo of the second Tetrabiblos.

Atius, in his Sixth Book, treats of the Disorders incident to the Head and Brain universally, and not only describes them, but shews a Way to cure them. He proceeds to speak of those who are bit by a mad Dog, of the Apoplexy and Palsy; of the Resolution of the Eye-brow, Eyelid, Tongue, vocal Instruments, and Oesophagus; and prescribes Cures for them all. Thence he goes on to the Spasmus Cynicus, and shews how to cure a Resolution of the Bladder, Penis, and Intestinum Rectum, the Leg, or any other Member; treats of a Tetanus [τταν] and of the different Sorts of Headaches, from whatever Cause they arise, of a Cephalgia [an intense Pain in the Head] and a Hemierania [a Pain confined to one Side of the Head]; prescribes a Cure for the Alopecia, and Defluxions of the Hair, and for bald Eyebrows; gives Receipts for dying, curling, eradicating Hair; to make it fine, and to prevent its shedding; and teaches the Making of Psilothra [Ointments to fetch off Hair]; speaks moreover, of the Pityriasis [a Sort

of Scurf] Phthiriasis [lousy Disease] Achores, and those Pustules [ἰσκαθίματα] which rise about the Head without any manifest Cause; for all these and the like Distempers he gives us a Cure; also for those various Indispositions from different Causes, to which the Ear is incident; for an Hæmorrhage from that Part, and for the Parotides. Thence he passes to the Nose, and its Distempers, when he treats of Sternutatories, and how to suppress immoderate Sneezing. This is the second Sermo of the second Tetrabiblos.

In the Seventh he proceeds to consider the Nature of the Eye, and those manifold Disorders to which it is subject, whether they proceed from an internal or external Cause. He instructs us in the Section of an Artery, in scarifying the Sinus [περὶ σινυσμῶ], the Edition of Photius's *Bibliotheca at Rouen*, 1653, has it *περὶ σινυσμῶ*, which Error has passed into the Latin Translation] and the Forehead, in the Method of Bleeding; among the rest he gives us Prescriptions for Ointments, Cataplasms, and various Sorts of Collyriums; and all this with no small Accuracy and Judgment. This is the third Sermo of the second Tetrabiblos.

In the Beginning of the Eighth he has something to say about adorning and setting off the Eyebrows; then speaks of a black Eye, how it comes, and how to cure it; teaches us to defend the Face from Burning, either by Sun or Wind, to preserve the same from Wrinkles, to alter a black Colour, with other additional Beautifyings, and to diffuse a good Scent over the Skin. Hence he passes to consider at large the Distempers incident to the Face, Mouth, and Tonsils, whether from an internal or external Cause. He treats of the various Maladies to which the Teeth are liable, and prescribes a Cure; also those of the Tongue, Uvula, and all that are comprised within the Compass of the Mouth. Among this Number are the Cynanche and the Synanche, which have their Seat in the Jaws; the Tonsils also have their Place among the rest. He shews a Way to revive those who are strangled, but not dead; discourses on the Diseases of the Arteries, and their Remedies; of Coughs also, and Catarrhs, where he prescribes Anodynes for the Cough, with Suffumigations and Epithems. After these he considers those who are afflicted with Asthma, Difficulty of Breathing, and Palpitations of the Heart; and having first treated of the Diseases of the Breast and Lungs, he closes the Book with a Discourse on the Pleurisy, the real and the reputed one, describes them both, and shews a Method of Cure. This is the fourth Sermo of the second Tetrabiblos.

The Ninth Book begins with the cardiac Passion, and proceeds to speak of those who have their Stomach affected with Atra Bilis, or the Mouth of the Ventricle any Way disordered, describing the Cataplasms, and other Remedies for the various Distempers of the Stomach. Here he considers the Case of those who suffer Convulsions of the Stomach, after the Manner of epileptic Patients; treats also of Want of Appetite, of the canine Appetite, of Indigestion, and their Cures. Then he shews how to cure a Surfeit, and prescribes a Remedy for Costiveness; treats moreover of Flatulencies, the iliac Passion, and the Colic, of Fluxes of the Belly, and what is called a Disposition to the Colic, of Colliquations, of Worms, round and broad, of those called Ascarides, and of the Affections of the Intestines. He prescribes a Remedy for those who have swallowed Gold, Brass, or any such Thing; as also for such as labour under a Dysentery, to be taken at the Mouth, or injected beneath, such as Pastils, Suppositories, Ointments, Epithems; and at last ends his Book with treating of a Lien-tary. This is the first Sermo of the third Tetrabiblos.

He begins his Tenth Book with the Liver, its Weakness, and other Disorders, and prescribes Medicines for them. Then proceeds to consider the Affections of the Spleen, and its various Disorders, such as Inflations, Inflammations, Scirrhoties, preternatural Tumors, and Hardness, and shews how to cure them; after these, of the Jaundice, Cachexy, and Dropsy; shews you whence every one of these Distempers proceeds, and puts you in a Way and Method how to cure them. This is the second Sermo of the third Tetrabiblos.

The Eleventh Book treats of a Diabetes, and the lax Tone of the Reins, of bloody Urine, of Stone in the Kidnies and Bladder, of Inflammation, Hardness, and Suppuration of the Kidnies; of Dysury, Strangury, and Ischury; of Resolution of the Bladder, of such as cannot hold their Water in Sleep, of the Inflammation, Hæmorrhage, Clots of Blood, Tubercles, and Ulcers in the Bladder; also of the Flux and Itch of the same Part; of a Satyriasis, Priapismus, Gonorrhœa, and venereal Dreams. To all these Distempers, as far as possible, he assigns proper Causes, and subjoins the necessary Cautions, and Cures. At the End of this Book he prescribes Exercises and Medicines for Impotency. This is the third Sermo of the third Tetrabiblos.

In his Twelfth Book he considers the Sciatica, and the Gout, and examines into the Causes, both general and particular, of these Distempers, and prescribes Variety of Remedies for them, and for other Disorders consequent upon them. He

recounts

recounts the several Ways of Evacuation, the Chrifms, Emollients, Anointings, the Acopa, and the Ointments, as alfo the proper Cathartics, and Antidotes, and Abundance of other Things proper to give Relief under thefe Difcafes. This is the fourth Sermo of the third Tetrabiblos.

His Thirteenth treats of the Bites of Animals, what Alterations and Symptoms they produce in the Subject bitten, and how to remove and cure them. He makes the like Observations on Animals that ejaculate their Poifon, and points out thofe Plants and Herbs which are venomous and destructive, with fingular Care and Diligence. He difcourfes on Jungi, Bull's Blood, and Milk clotted in the Stomach; informs us what metalline Subftances are hurtful to an Animal, when taken inwardly; explains how drinking of cold Water or Wine may be hurtful; makes Observations on thofe who are ftrangled, drowned, or precipitated from fome high Place; of Precaution and Forefight in Brute Animals, efpecially domeftic ones. He then difcourfes of the Theriaca Andromachi, of Vipers, gives its Preparation, Ufes, Seafons of ufing it, Ways to try it, the Dofe, and the Diftempers in which it is properly adminiftered; alfo the other Theriaca, particularly the Antidotus Mithridatica, or Mithridate, its Preparation, Ufe, and in what Cafes it is to be adminiftered. To this he fubjoins other Antidotes, and to them the two Cyphi [precious Ointments]. From thence he proceeds to write of the Elephantiafis, of pruriginous Eruptions [κνησμοδὼν ἐξανθημάτων] Pfydraces, and Pustules arifing from Sweat [ψυδράκων καὶ ιδρωτίδων] ulcerous Eruptions [ἰκκιδῶν ἐκβρασμάτων] in the Legs, Scars from Ulcers which blacken and deform the Body. He proceeds to treat of the two Species of Alphas [ἄλφας, a Kind of Leprofy] and of the Leuce [λευκή, a white Sort of Leprofy] and laftly of the Leprofy; fhews their Original and Causes, and prefcribes their Cures. This is the first Sermo of the fourth Tetrabiblos.

In the Fourteenth Book *Actius* treats with great Accuracy of the various Difcafes incident to the Anus, of Warts [βάραι] and Fiffures in the Pudenda, of a Phlegmon, Carbuncle, phagedenic Ulcers, and fuch as have their Seat in the urinary Paffages; of a scabbed Scrotum, of an Inflammation in that Part and the Testicles, and the Species of Herniæ; of the Composition of Plaifters, and the Way of preparing the Ingredients. He treats moreover of wounded and bruifed Nerves, of Buboës, and Phlegmons in general; alfo of Abfcelfes, and hollow Ulcers, declaring their Nature, and prefcribing Remedies for all, and alfo for Worms bred in Ulcers, and againft the Spreading, Putrefying, and Bleeding of the fame. He carries on his Difcourse to a Sinus, Fiftula, Gangrene, Sphacelus, cancerated Tumors, Carbuncles, Eryfipelas, Herpes, Terminthus, and Pustules, fpecifying their Causes and Cures. He prefcribes healing Medicines for fuch as are burnt with Fire, fcalded with Water, or scourged with Whips; for Abrasions, Galls, Contufions, where the Flefh is whole or broken [σάρκως θλασθίτος ἢ ραγίστης] for Convulfions, Contorfions, Luxations, and Chilblains, not omitting Excrefcences over the Nails, Whitlows [ωτιτρυγίον, παρωνυχίας] Nails crufted, bloody, loofe, or rotten; alfo to make fresh Nails grow out in the Room of thofe which are fallen off, to get off Rings that are grown into the Flefh, to cure Corns and Chaps in the Feet, and alfo Varices. The Book concludes with the Management and Cure of the Dracunculi in the Arms and Legs. This is the fecond Sermo of the fourth Tetrabiblos.

The Fifteenth Book contains the Theory and Cure of oedematous, emphysematous, indurated, and incysted Tumors, of Strumæ, Bronchocele, Melicerides, Steatomata, Ganglia, Aneurifms, Favi, and Hydrocephalus. Of all thefe you have the Origin, and Causes, with the chirurgical and other Methods of Cure, and the Preparation of many and various Sorts of Plaifters. This is the third Sermo of the fourth Tetrabiblos.

In the Sixteenth, and laft, the Author treats of the Situation, Structure, and Magnitude, of the Womb, with the Seafons of its Purgation and Semination. Of Conception, of the Marks of Fœcundity, and having actually conceived, and of the Symptoms peculiar to pregnant Women. Of the great Care that is to be taken of them; who are qualified for eafy Labour, and who are unhappy in that Refpect. Of hard Labours, and preternatural Births, of the Cæfarian Section, and Extrac­tion of the Secundines; what are the Causes of Infœcundity in Man or Woman. For all thefe fore-mentioned Evils, Remedies are provided in this Book; as, for Instance, Potions, Peffaries, and Suffumigations are prefcribed to promote Conception. Hence he goes on to the Difcafes of Womens Breasts, which he treats of in a fkillful Manner, explaining their Origin, Effence, chirurgical and other Methods of Cure. After this, he enquires into the Causes of the Obstruction of the Menfes, of their too plentiful Efflux, both the red, and the white; of Hysterics, and a Fluor albus, with excellent Prefcriptions in thefe Cafes. He proceeds to treat of other Diftempers of the Uterus; as Abfcelfes, oedematous Tumors, Moles, Dropfy, Ulcers, &c. and other Things of the like Kind, not forgetting to fpeak of the Phimosis, and Imperforation, and other like Incidents, with their proper Remedies; alfo

of the Section of the Nymphæ, Cercosis, the Hernia varicoſa, Thymi, and fuch like; and how to cure them. To all thefe he fubjoins fome Smegmata [a Sort of Wash-balls] for the Face, and other Parts of the Body, with Prefcriptions for the Composition of fome precious Ointments, with which he closes his Treatife of the Art of Medicine. This is the fourth Sermo of the fourth Tetrabiblos.

This Work of *Actius*, in my Opinion, excels the Synopfes of Oribafius, I mean thofe dedicated to Eustathius and Eunapius, on all Accounts; for he does not only give us the Definitions, the Causes, the Diagnosticks, and Prognosticks, in a more perfpicuous Manner, but is more full and copious in the therapeutic Part. And he is not only his Superior in thofe Refpects, but even in what he has epitomifed from Galen, both in Perfpicuity, and Extensiveness, as comprehending more Difcafes. But, perhaps, there is no Comparifon between this Work and that of Oribafius, which takes up feventy Books; becaufe our Author has not only omitted Anatomy, which Oribafius has explained, but has faid nothing about the Ufe of the Parts, which indeed more properly comes under the Confideration of a Philofopher than a Phyfician. On thefe Accounts, perhaps, it will be thought inferior to the fore-mentioned Epitome of Galen's Works. But, to fpeak my Mind freely, in this negligent Age, which minds nothing lefs than the Sick, I would recommend this Collection above all other Works of that Kind, efpecially to thofe who do not care to fearch into the Depth of the Theory of Medicines, but have the Health of Mankind more at Heart. They will here find Remedies in Abundance, and an ample Recompence for all their Pains and Study on this valuable Piece of Medicine. *Photii Biblioth.*

This is the Character Photius beftows on *Actius*, and Cornarius agrees with him fo exactly, that he feems to tranfcribe him.

Of the Works of *Actius*, only the two first Tetrabibli, or eight first Books, have yet been printed in Greek, and thefe only once in Folio, at Venice, 1534. The reft are faid to remain in Manuscript in many Libraries.

Johannes Baptista Montanus, a Phyfician of Verona, was the first who published a Latin Tranſlation of all his Works, at Baſil, 1535, in Folio.

In 1542, Janus Cornarius published his Tranſlation of all the Works of *Actius* at Baſil in Folio. This has been feveral Times reprinted, and is published amongft the *Medicæ Artis Principes*, by H. Stevènis.

AETOI PHLEBES. *Ἄετοι φλέβες.* *Eagle-veins.* According to the Report of Ruffus Ephesus, Philistio, an Italian Phyfician, who wrote in the Doric Dialect, which was ſpoken in that Part of Italy where he was born, called certain Veins which aſcend through the Temples to the Head by this Name. *Ruffus Ephes. L. i. C. 33.*

ÆTOLION. *Ἄετλίον.* The ſame as *Granum Cnidium*. *Gorræus.* See *CNIDIA GRANA*.

AETOMA. *Ἄετωμα.* *The Roof of a Houſe.* This Word is uſed by Hippocrates, in his Treatiſe *de Articulis*, and for that Reason claims a Place here.

AETONYCHUM. From *Ἄετις*, an *Eagle*, and *ὄνυξ*, a *Claw*, or *Nail*. The ſame as *Lithospermum*; ſo called from the Hardneſs of the Seeds. See *LITHOSPERMON*.

AFFAX, AFFARX, or AFFARIS. *Ἄφφαξ.* *Ink.* *Rulandus. Johnson.*

AFFECTIO, or AFFECTUS. An *Affection*. This is expreſſed in Greek by *πάθος*. It ſignifies a Disorder that all, or any Part of the Body is affected with, or ſuffers. Thus *Affectio Colica* is the Colic; *Affectio Melancholica* is Melancholy. And in this Manner by adding an Adjective to *Affectio*, or *Affectus*, moſt Diftempers, to which the Body is ſubject, are expreſſed.

AFFENICUM. *The Soul.* *Rulandus.*

AFFEOS. The ſame as *ἄφρος*, *Spuma*, *Froth*, or *Foam.* *Rulandus.*

AFFIDRA. *Cerufs.* *Rulandus.*

AFFION. A Name for *Opium*. A particular Sort of Electuary alſo prepared in Bantam, in which Opium is an Ingredient, is thus called. It is famous for exciting Courage and venereal Vigour. *Caſtellus.*

AFFLATUS, or, as it is ſometimes wrote, **ANFLATUS.** A *Vapour*, or, as the Country People call it, a *Blaſt*, preſerving the Analogy of the Latin Word, which affects the Body with ſome ſudden and dangerous Diſtemper. It is uſed to expreſs ſuch violent Effects of ſomething contained in the Air, or of the Bites of Serpents, and is often applied to Inchantments, with a View to which Horace ſays:

velut illis
Ganidia amasſet pejor ſerpentibus Afrit.

AFFLICTIO. AFFLICTION. I do not know that this has been admitted into the Catalogue of Diftempers, but it is certainly productive of a great many, and thoſe often fatal. For, according to the vulgar Way of expreſſing it, many Peo-

ple die of a broken Heart, and for Reasons that appear very obvious.

It is known, that those Passions of the Mind, which increase the Velocity of the Blood, augment the Stricture, Tensity, or Elasticity of the animal Fibres. This Effect these Passions have in common with every other Cause which makes the Heart contract with greater Force, and expel the Blood from it with more Strength. Because, under these Circumstances, the Blood acts with a greater Force, or, as the Mathematicians call it, *Momentum*, upon the solid Parts, and the reciprocal Action of the Vessels on the Blood is also increased; hence, with Respect to the Solids, the Application of Part to Part is brought about with more Force, or, in others Words, what is supplied by Nutrition is more firm. With Respect to the Fluids, these, being pressed upon by the Solids with an increased Strength, are more compacted together, and consequently contain an equal or perhaps a greater Quantity of Matter under a less Surface. The Secretions also are performed with more Vigour, and a great Part of the watery Particles is separated from the Blood, and carried off by the proper Emunctories. Hence the Fibres are rendered hard, elastic, and rigid, and the animal Strength is in general increased. But if this State is carried beyond a certain Point, various Diseases are thence produced, as Madness, Inflammations, Gout, Stone, and malignant Ulcers.

The Passions, usually said to produce these Effects, are Anger, Envy, and Hatred. Thus Achilles, the strongest Man of the Grecian or Trojan Army, is represented as extremely passionate; and thus the envious Man is said to grow lean in a literal Sense at the Prosperity of his Neighbour.

But, on the Contrary, those Passions which diminish the Velocity of the Blood have an Effect directly the Reverse; for the reciprocal Action betwixt the Solids and Fluids, being lessened, neither can be so compacted as in the other Case. The Secretions also must be carried on with less Vigour, and many Particles which ought to be discharged as of no Use to the Economy of the Whole, are retained, hence the Muscles become relaxed and flabby, the Glands obstructed, and the whole Habit bloated, and weak.

The Passions which induce this Alteration, are Fear, Grief, and those also which cause a great Complacency, as Joy and Delight. Hence Fear and Grief are observed to bloat those affected much with either; and Prosperity to make People fat, which are both Degrees of Relaxation.

It will be difficult to specify the Manner how the Passions either increase or diminish the Force of the Heart, till such Time as the Action of the Soul upon the Body is better known. Instead therefore of attempting this, I shall give a remarkable Instance of the Effect of Afflictions from the *History of the Royal Academy of Sciences*.

A Lady of Dauphiny, aged Forty-seven, being seized with a violent Sorrow on Account of the Death of her only Son, in September, 1729, began, from that Time, to fall into a very languishing Condition, and a Leanness that still grew upon her. At the End of nineteen Months, M. Patras, Doctor of Physic at Grenoble, who obliged the Academy with this Relation, found her under a slow Fever, and felt a hard Tumor in the Hypogastrium, of the usual Bigness of the Uterus, three Months and a half after Conception; and, indeed, he thought it was the Uterus itself. This Lady, since her Misfortune, had lost her Menfes for some Time past.

The Disease grew more and more considerable, the whole Abdomen swelled, the Water was felt in its Cavity, and Tapping was resolved upon, which was performed twice at her Seat in the Country, the Autumn of 1731. At the first Operation there came some Drops of Water; at the Second nothing at all.

As this Swelling of the Abdomen, which continually increased, caused a violent Oppression on the Breast, M. Patras was for another Tapping, but in a different Place. The Physician, who had directed the first, had no Concern or Thought of any Thing but the Ascites, which was visible before him, not dreaming of the Tumor in the Hypogastrium, which M. Patras was privy to, and which was then hid by the Dropsy. M. Patras then chose another Place for the Tapping; but, to his great Astonishment, there came out nothing but some Drops of Blood. Notwithstanding this, the Fluctuation of the Waters in the Abdomen was very sensible, insomuch that M. Patras thought himself obliged not to be discouraged by those hitherto fruitless Attempts of Tapping, since all other Remedies had no Effect. In short, the Operation was renewed, and there came forth just nothing.

After this the Legs of the Patient broke without any Assistance, whence in the Space of fifteen Days issued out Abundance of Serosities, which, at least in Part, belonged to the Abdomen, for the Oppression on the Breast was considerably diminished; but this Relief was the only good Consequence. The slow Fever still continued, and M. Patras, who could then easily perceive the Tumor in the Hypogastrium, found it very much augmented. Besides this, it was accompanied

with a raised Border, in Form of a Girdle, which went across it from one Side to the other. This Girdle was of a soft Consistence, and bore out about half an Inch.

At last, the Patient, quite exhausted of Strength, and frightfully lean and extenuated, could no longer take any Sustenance, but died the first of May, 1732.

The Body being opened, to pass over the Difficulty of disentangling the Parts, which had hardly preserved any Thing of their natural Disposition, M. Patras very plainly perceived, that the Tumor of the Hypogastrium which he had first touched, and which he thought had been the Uterus, was indeed the left Kidney, so prodigiously increased in Bulk, that it weighed thirty-five Pounds. Its natural Structure was altered, in Proportion to that Augmentation of Bulk and Weight. What looked like a Girdle, whose Bearing out might be felt, was the Colon, which passed above the Tumor, and had stuck thereto.

It is now no longer to be wondered, that the Waters were felt floating in the Abdomen, and yet that the Tapping got none of them out. For these Waters only floating in the Spaces left void by that enormous Mass of the Kidney; there was not a sufficient Quantity found in the very Places where the Trocar had penetrated. Perhaps a little too went off, and took another Situation, so that when the Instrument was taken out, and the Cannula came to be applied, it met with nothing but a Mass too solid for its Purpose. What is most worthy of Observation in this strange Accident, is the Power of great Afflictions in changing, to such an excessive Degree, the very Structure of the Human Body. *Hist. de l'Acad. Roy. des Sciences, Année 1732.*

AFFODIUS. A Sort of Serpent, according to Castellus, the same as the Hæmorrhous, or very like it.

AFFORMAS. *Glass.* *Rulandus.*

AFFRENGI. *Red Lead.* *Rulandus.*

AFFRODINA. The same as *Venus.* *Rulandus.*

AFFRONITUM. See *APHRONITUM.*

AFFROTON. *Frothy.* *Rulandus.*

AFFUSIO. *Affusion.* The Pouring a Liquor upon any other Substance. Sometimes it signifies the same as *Suffusio*, a Cataract.

AFRA. An *Ostrich.* See *STRUTHIOCAMELUS.*

AFRAGAR. *Verdigrease.* *Rulandus.*

AFRICANUS FLOS. *African Flower.* There are many Species of this Plant; the fourth mentioned by Gerard is thus distinguished.

Othonna, Offic. *Othonna*; *Tagetes Indicus*; *Flos Africanus*, Chab. 358. *Tagetes Indicus minor simpliciflore*, sive *Caryophyllus Indicus*, sive *Flos Africanus*, J. B. 3. 98. Raii Hist. 1. 343. Boerh. Ind. A. 114. Tourn. Inst. 488. Elem. Bot. 390. *Flos Aphricanus minor simpliciflore*, Ger. 611. Emac. 750. *Flos Africanus minor simplex*, Park. Parad. 304. *Tanacetum Africanum sive Flos Africanus minor*, C. B. 133. *Chrysanthemum Africanum Tanacetifolio procumbens*, sive *minus flore simplici*, Hist. Oxon. 3. 16. *Tapalcotalli Coaxochitl*, *Caryophyllus Mexicanus*, V. Hern. 156. *Tagetes minor flore luteo-rubescens*, Act. Reg. Par. An. 1720. 315. **AFRICAN MARYGOLD.** †

Gerard mentions four Sorts of this Plant, the first he calls:

FLOS AFRICANUS MAJOR POLYANTHOS. *The great African double Marygold.*

This, he says, hath a great, long, brown, reddish Stalk, crested, furrowed, and somewhat knobby, dividing itself towards the Top into other Branches; whereon grow Leaves composed of many small Leaves, set upon a middle Rib by Couples, much like unto the Leaves of white Valerian, bearing at the Top very fair and beautiful double yellow Flowers, greater and more double than the greatest Damask-Rose, of a strong Smell, but not unpleasant. The Flowers being past, there succeedeth long, black, flat Seed; the whole Plant perishes at the first Approach of Winter.

The Second differs not much from the First, only that this Plant is less, and brings forth more Flowers, we may therefore call it, **FLOS AFRICANUS MINOR MULTIFLORUS.** *The small double African Marygold.*

The Third he calls, **FLOS AFRICANUS MAJOR SIMPLICIFLORE.** *The great single French Marygold.*

It hath a thick Root, with some Fibres annexed thereto; from which riseth up a thick Stalk chamfered and furrowed, of the Height of two Cubits, divided into other small Branches; whereupon are set long Leaves, compact or composed of many little Leaves, like those of the Ash-tree, of a strong Smell, yet not very unpleasant. On the Top of the Branches grow yellow single Flowers, composed in the Middle of a Bundle of yellow Thrums hard thrust together, paled about the Edges with a Border of yellow Leaves; after which cometh long black Seed. The whole Plant perisheth with the first Frost, and must be sown yearly as the other Sorts must be.

The Fourth is called:

FLOS AFRICANUS MINOR SIMPLICIFLORE. *The small French Marygold.*

The common *African*, or as they vulgarly call it, *French Marygold*,

gold, hath small, weak, and tender Branches, trailing upon the Ground, leaning every Way, beset with Leaves consisting of many particular Leaves, indented about the Edges, which being held up against the Sun, or to the Light, are seen to be full of Holes like a Sieve, even as those of St. John's Wort; the Flowers stand at the Top of the spriggy Branches, proceeding from long Cups, or Husks, consisting of eight or ten small Leaves, yellow underneath, on the upper Side of a deeper Yellow, tending to the Colour of a dark Crimson Velvet, as also soft in handling; but to describe the Colour in Words, it is not possible, but this Way; lay upon Paper with a Pencil a yellow Colour, called Masticot, which, being dry, lay the same over with a little Saffron steeped in Water, or Wine, which setteth forth most lively the Colour. The whole Plant is of a most rank and unwholesome Smell, and perisheth at the first Frost.

The unpleasant Smell, especially of that common Sort with single Flowers (that stuffeth the Head like to that of Hemlock) doth shew, that it is of a poisonous and cooling Quality; and also the same is manifest by divers Experiments; for I remember, saith Dodonæus, that I saw a Boy, whose Lips and Mouth, when he began to chew the Flowers, swelled extremely; as it hath often happened to them that playing or piping with Quills or Kexes of Hemlock, hold them a While between their Lips; likewise, he saith, we gave to a Cat the Flowers with their Cups, tempered with fresh Cheese, she forthwith mightily swelled, and a little While after died; also Mice that have eaten of the Seed thereof have been found dead. All which Things declare, that this Herb is of a venomous and poisonous Faculty; and that they are not to be hearkened to, that suppose this Herb to be a harmless Plant. So to conclude, these Plants are most venomous and full of Poison, and therefore not to be touched or smelled unto, much less used in Meat or Medicine. *Gerard's Herbal.*

Miller reckons up thirteen Species of these Plants.

The fourth Species, mentioned by Gerard, is called OTHONNA, as is taken Notice of above. But it does not appear certain, that it is the *Othonna* of Dioscorides and Pliny, of which they give the following Account:

Some assert the OTHONNA to be the Juice of the greater *Celandine*, others of the *Glaucium*; some will have it to be the expressed Juice of the *Papaver corniculatum*, while others pretend to assure us that it is a Mixture of the Juices of *female Pimpernel*, *Henbane*, and *Poppy*; and to name no more, some affirm it is the Juice of a troglodytical Herb, called OTHONNA, which grows in that Part of Arabia, which borders upon Egypt. Its Leaves are most like those of Rocket, full of Holes, as if they were Moth-eaten, dirty, and few in Number; so that some have taken it for a Species of *Anemone*.

The Juice expressed is proper for the Eyes, in Cases that require Cleansing; for it has a biting Quality, and absterges whatever may dim or cast a Mist before the Pupil of the Eye. It is said, that a moist Substance distils from the Herb, which, after it is washed and cleansed from Gravel, is made up into Troches, for the Purposes aforesaid. But some will have this to be an Egyptian Stone, that is found in the Province of Thebais, of the Colour of Copper, and of a hot biting Taste, mixed with an Astringency. *Diosc. L. 2. C. 213.*

OTHONNA grows in Syria; it is like the Rocket, having its Leaves perforated in many Places, and a Flower like that of Saffron, for which Reason some have called it *Anemone*. Its Juice is good in Collyria, for it gently stimulates and dries, and has an astringent with its drying Quality. It clears the Eye of Cicatrices and Nubeculæ, and whatever else incommodates it. *Plin. Nat. Hist. L. 27. C. 12.*

AFROB. Rulandus explains this by *Plumbum nostrum*, *Corpus immundum*. I suppose he means Alchymistical Lead, which is ANTIMONY.

AGA CRETENSIMUM. This, according to Ray, is the *Silybum minus Bæticum* of Parkinson. *Carduus lacteus peregrinus Camerarii*, J. Bauh. *Albis Maculis notatus*, C. Bauh. The small Spanish Milk Thistle. See *SILYBUM*.

AGALACTIA. Ἀγαλακτία. From a Negative, and γάλα, Milk. A Defect of Milk in Childbed. Hence ἀγάλακτος, *agalactos*, an Epithet given to a Woman that has no Milk when she lies in by *Hippocrates*.

AGALLOCHUM, is a Sort of Wood, which is exported from India and Arabia, like the *Thya*, marked with Spots, odoriferous, of a bitterish astringent Taste, with a thin skinny Bark, and somewhat mottled.

Chewed, or the Mouth rinsed with the Decoction, it makes the Breath sweet; dried and powdered, it serves as a Diapasm [Perfume] for the whole Body, and is used in Suffumigations, instead of Frankincense. The Weight of a Dram of the Root, drank, cures the excessive Humidity, Laxness, and burning Heat of the Stomach [usually called the Heart-burn]. Drank in Water, it relieves those who are afflicted with Pains in the Side or Liver, or labour under a Dysentery, or the Gripes. *Dioscorides. Lib. 1. Cap. 21.*

Ἀλόη, an Indian Tree, whose sweet-scented Wood is called *Ξυλάλοις*, and is the same with *Agallochum*. Ἀλόη is an Herb,

as much Indian as the other; but growing also in other Countries; whose Juice is recommended among the principal Cathartics, chiefly on Account of its Bitterness. Hence we see that most Authors, both antient and modern, have confounded the aromatic with the purging Aloe. *Agallochum* is from the Hebrew אהלה, *Ahaloth*. The Masculine אהל, *Ahel*, whose Plural is אהלים, *Ahalim*, is found, they say, to bear the same Signification. Thence come the Greek ἄλν, which was very much in Use among the later Greeks, who also say ξυλάλοις, whereas the Antients more frequently used Ἀγδαλλοχόν; and yet the Septuagint were not ignorant of the aromatic ἄλν. The cathartic ἄλν, in Syriac, is ܐܠܐܪ *Olar*. Hence that Word came to be adopted by the Greeks. The Arabic has its *Cabar*, *Sebar*. In an antient Græco-Arabic Glossary, we find written, *σαπνίς, ἢ ἄλν*. In the printed Serapion, *Laber* is injudiciously put for *Saber*. A very antient Latino-Arabic Glossary interprets *Aloe* by *Seru*; and *Seru* is the Cypress-Tree, in the same Book. And *Seru*, by an antient Interpreter of Avicenna, is taken for the same Tree. I am of Opinion, that the Author of that old Glossary put this *Seru* for the aromatic Aloe. A manuscript Copy of Dioscorides, of great Antiquity, with Arabic Notes, under the Word ἄλν, subjoins, with an Article [the Arabic Article *Al*] *Alcebar*. Hence comes the Spanish *Acera*.

As for the aromatic Aloe, or *Agallochum*, the later Greeks, who are beholden for it to the Arabians, make two Species of it, Ἀγδαλλοχόν Ἰνδικόν [*Agallochum Indicum*] and Ἀγδαλλοχόν Σινφί [*Agallochum Simphi*]. So I find it in Charito, the Physician. In Serapion's Interpreter, *Seifi* is wrongly put for *Sensfi* or *Sinfi*; from an Indian Island, called *Sinf*: For there is a Difference between the *Sinfi*, and what they call the Indian *Agallochum*. The latter is so denominated, rather from its Colour than its Country, for they call the Black by this Name, which is the most valuable Sort. So of the various Kinds of Myrobalans, which are all Indian, only the Black is honoured with that Name. And in other Things I have observed the Appellation of *Indian* bestowed on the blacker Sort. The Indian *Agallochum* is also mentioned by Avicenna, under the Letter *A*, where he enumerates the several Kinds that come from different Parts of India, as the Mundalic, the Cumeric, those which come from Calay and China, and others. In that Chapter, he renders *Haud* by an Arabic Word, which signifies Wood in general. *Haud* also with them signifies a Flute; and we [the French] too call a Flute Wood, *Hautbois*, which, perhaps, is compounded of the Arabic Word and its Interpretation. But *Agallochum* was called *Haud* κατ' ἐξοχήν, by Way of Eminence; and this was its proper Name among the Arabians. Garcias ab Horto relates, that in Decan, and Guzarate, which is thought to be the Country of the antient Gedrosii, the *Agallochum* is called *Ud*, which Word he supposes derived from the Arabic. Perhaps the Arabic was derived thence. In the Writings of the Portuguese, it is called *Udo*; doubtless the same as *Haud* in the Arabic Pronunciation. It is better, therefore, to render what the Arabians call *Haud* *Heud*, by *Agallochum Indicum*, than, as learned Men do, by *Lignum Indum*. In the Exposition of Andreas Alpagus, the Author is wrong in reading *Heudeen*, i. e. *Lignum Aloes Indum*. Read *Hend Hen*, or *Haud Hend*, which is from *Haud Hendi*. In Greek I read Ἡνδαχέντο [*Heudachento*], as τὰμαρχέντι [*tamarchenti*] for *tamarchendi*. So *Haud alcumeri*, in the Arabian Geographer, is not the *Lignum Comaricum*, but the *Agallochum Comaricum*; as the Ἀγδαλλοχόν Σινφί in Charito is *Haud Sinfi*. It is otherwise called by the Arabians *Agalugi*, which is a Corruption from the Greek Ἀγδαλλοχόν; and in Avicenna it is read *Agallugun*. The modern Greeks most commonly call it ξυλάλοις, *Xylaloes*, having no Regard to the Meaning of the Arabic Word, but only to distinguish it from the other Aloe, which stands recommended on Account of its Juice, and not for its Wood. *Salmasius de Homonym. Hyl. Intr. Cap. 6.*

The *Agallochum* is thus distinguished by Authors:

1. *Agallochum*, *Xylaloes*, & *Lignum Aloes*, Offic. *Agallochum* & *Xyle-Aloes*, Offic. Geoff. Tract. 309. *Agallochum sive Lignum Aloes*, Park. Theat. 1564. *Agallochum Officinatum*, C. B. Pin. 393. Raii Hist. 2. 1808. *Agallochum verum*, Ephem. Germ. Dec. 11. Ann. 3. p. 74. *Agallochum Lignum Aloes*, *Xylaloes*, Chab. 35. *Agallochum Officinatum*, aliis *Lignum Aloes*, Johnf. Dendr. 460. Sinkoo vulgo *Japonum Kavoriki*, i. e. *Lignum seu arbor fragrans*, Siannensibus *Kissina*, Latinis *Arbor Aquilæ* & *Aloes dicta*, cujus fragrans *Lignum appellatur Agallochum*, Kemph. Amoen. Exot. 903. *Lignum Aloes vulgare*, Ger. Emac. 1622. *Lignum Aloes*, vel *Xylaloes*, Ind. Med. 67. *Lignum Aloes*, *Agallochum*, *Xylaloes*, Mont. Exot. 7. *Lignum Aloes Officinatum*, & *Agallochum plerisque putatum*, J. B. 1. 477. WOOD OF ALOES. Dale.

It is an Indian Wood, like the *Thya*, sweet-scented, and chewed in the Mouth makes a sweet Breath. *P. Aeginet. Lib. 7. Cap. 3.* from *Dioscorides*.

It has an astringent mixed with a bitterish Taste; its Bark is like Leather, and of various Colours. *Orbas. Lib. 11.* from *Dioscorides*.

AGALLOCHUM. This is a Wood brought to us from the East Indies, and is said to grow in China, and there to be called Calambac: But we have no certain Account or Description of the

the Tree, whose Wood it is. It is brought over in small Pieces, we seldom seeing those of any great Length or Bigness: It is of a hard, solid Texture, firm and ponderous, of a yellowish brown Colour, with several black or purplish resinous Veins interspers'd; of a bitterish hot aromatic Taste, of no very strong Scent till it is burnt. Though several Authors set it down as a principal Note of the Goodness of this Wood, that it will swim in Water, yet I have never met with any but what would sink in it, notwithstanding it had all other Characters of true Lignum Aloes.

This Wood is heating and drying, cordial, and strengthening the Nerves, revives the animal Spirits, comforts the Heart and Brain, prevents swooning Fits, and Disorders of the Womb; it is frequently put among Cordials, Species, and Powders. *Miller. Dale.*

Dale seems to esteem the two following Woods near a-kin to *Agallochum*.

2. *Aspalathum*, Offic. Geoff. Tract. 310. Mont. Exot. 7. *Lignum Aspalathum*, Pharmacop. *Aspalathus*, Ind. Med. 15. *Agallochum præstantissimum*, Johnf. Dendr. 460. C. B. Pin. 393. CALAMBAC WOOD.

This Wood also is brought from the East Indies in Pieces that are thicker and less solid than the Lignum Aloes, of a paler Colour, and fainter Smell, bituminous, fat and resinous, and of a bitterish Taste.

Its Virtues are the same with those of the preceding (for which it is often sold) but weaker.

3. *Lignum Aquilæ*, Ind. Med. 67. EAGLE WOOD.

It is used in the Shops at Paris, instead of *Aspalathum*; but seldom met with among us.

Most Botanists take the *Agallochum* of the Antients to be the Lignum Aloes of the Shops; others suppose the *Aspalathum* of the Antients to be the same. Again, others, especially the Arabians, make several Kinds. Garcias knew but one Indian Species. The Shops, as Clusius observes, can shew us two Kinds of Lignum Aloes. Caspar Bauhinus divides it into three Sorts. The first he calls the finest *Agallochum*, which is reserved for the Use of the Indian Kings. The second Kind is what is sold in Shops, and the third is the wild *Agallochum*. There are only two Sorts to be met with in the Shops, as we said before. And, it is assured, that we have the true *Agallochum*, or Lignum Aloes, brought to us from China, called *Calambac*. This is a tall Tree, described by none, that I know of; for what Garcias ab Horto writes of is not the same, but the *Aspalathum*, abovementioned, as some skilful Botanists, who have travelled in the East Indies, assure us.

Why *Agallochum* is called *Lignum Aloes*, says Paulus Ammannus, many are at a Loss. *Hoffmannus*, Lib. 2. Cap. 25. says, "Perhaps 'Αλόν, in the Indian Tongue, signifies a *Perfume*." *Bontius ad Cap. 16. Garc. ab Horto*, p. 43. derives it from *Savour*. "This Wood of Aloes, says he, has a peculiar aromatic and bitterish Taste, whence, perhaps, it took the Name of Aloes." I would have none think the Aloes of the Shops to be the concrete Juice of this Tree, as Wormius makes it, p. 272. For this is a peculiar tall Tree, but the Juice of Aloes comes from a Plant of the same Name.

The Lignum Aloes, exported from Manilam in Cochinchina, is of three Sorts. 1. *Sakbio*, which seems to be the outer Part of the Trunk; it is not ponderous, is of an Ash-colour, with Veins of Black, a very little bitterish, moderately fragrant, not gummy. 2. *Thimbio*, is to be had at the Shops. This is of a blackish Colour, solid and ponderous, intersected with Veins and Channels, gummy, bitter, very fragrant, swimming in Water, called by the Spaniards, *Calamba*. 3. *Gilam bio*, which is of an Ash-colour, inclining to pale, soft, and very fragrant.

There is another Sort brought from *Kalapa*, of a darker Colour than the *Thim-bio*, and more ponderous, sinking in Water. The Chinese export a very black Wood, moderately fragrant, which they call *Vai-bio*; and another reddish Sort, of an extraordinary Fragrancy, called *Ghi-tua*.

An Account of the LIGNUM CALAMBAC, and LIGNUM ALOES, sent by Mr. Cunningham to Mr. Petiver.

The true *Calambac* is known by its fragrant Smell, its bitterish and aromatic Taste, and its Softness, like Wax or Maltich, receiving Impressions from the Teeth or Nails. There are several Degrees of Goodness in it; for in the Kingdom of Cochinchina, or Annam, the chief, if not the only, Place of its Growth, it is sold from 10 to above 50 Tael an English Pound. In Respect of Colour, there are three Kinds, viz. 1. The mixt-coloured, or black-purple, like a Duck's Head, as the Natives make the Comparison. 2. The spotted, like a Tiger. 3. The yellow, like the Yolk of an Egg. What falls of itself, without selling, is for the most Part of a Variety of Colours, and most valued. The *Calambac*, in the Annamitic Tongue, is called *Kenam*. The Chinese Merchants of Fokien pronounce it *Kelam*, whence perhaps is derived the Word *Calambac*. *Lignum Aloes*, boiled in the Decoction, or Juice of

Calambac, is sold, by some, for the true *Calambac*; but left a while to dry, it loses its Fragrancy, Softness, &c.

The nearer the *Lignum Aloes*, or *Agallochum*, approaches to *Calambac*, the better it is. But the former is, for the most Part, harder, and feels dryer, and, as it were, like Dust in the Mouth; and is not so fat, but weaker in all its Qualities. A Pound of it is worth from 5 Mas. to 6 Tael. *Lignum Aloes* is called by the Portuguese *Pao Agula*, by the Natives *Keang*, that is, *fragrant*. The Chinese in the Mandarin Language call it *Tchin-biang*, that is, *the fearful or sinking Fragrant*; but the *Calambac* they call *Suk-biang*, that is, *the fat Fragrant*. Some tell you that the *Lignum Aloes* is produced by several Trees: But all agree, that the *Calambac* is the Product of a Tree that bears Fruit (some of which I send you) supported by a *quinquefid Calyx*, almost in the Shape of a Pear, covered with a Down, of the Size of a Citrine Myrobalan, with a thick ligneous, or fungous Coat, cleaving in the Middle, and containing on each Side a Kernel, shaped like a Top, and supported by membranous Appendices. The Fruit pulverised is an excellent Remedy for the Gripes. *Dale.*

A Tael is the Value of six Shillings and eight Pence Sterling, and a Mas, the tenth Part of a Tael; that is, eight Pence.

A Dram of the Powder of the Root; drank, cures the too great Humidity and Laxness of the Stomach; it is good also in Distempers of the Liver, Dysenteries, and Pleurifies. *P. Æginet. Lib. 7. Cap. 3.*

Of all the Woods sold in the Shops, we have none more precious, more valuable and rare, than the true Wood of Aloes or Xylaloes: Upon which Account it is very little known, and every one is liable to mistake the Wood, which makes it easy to be counterfeited; so that it is a difficult Matter to know it positively, it being described so differently, by different Authors.

There are several Sorts of it, but the best is the *Agallochum* of India, which comes from Calecut. The finest is the black Kind, of a changeable Colour, full, heavy solid, and thick; which cannot be whitened, and is difficult to set on Fire.

There are others which pretend to affirm, we cannot have the true Wood of Aloes, and that it grows not in this terrestrial Paradise, it having been swept away by Deluge: And others will not allow it us, because it is not produced among us, except in Deserts, and upon inaccessible Mountains; not only from their Height, but because of the wild Beasts that inhabit among them, as the Lion, the Tiger, the Panther, and the like; besides a Thousand other idle Stories, that are told about this Wood: To confute all this, I shall only tell you, that the Ambassadors from the Kingdom of Siam, brought of this true Wood to present to the King of France now reigning, as well wrought as unwrought; among the rest, a Basen with its Salver, proper to wash the Hands in, made at Siam, after the Mode of that Country. This Basen, though of Wood, is more esteemed than if it had been of massy Gold, because made of the Tree of the true Aloes Wood growing at Bantam and in China, and which is of the Size and Shape of the Olive-Tree, having Leaves something after the same Sort; upon which grows a little round Fruit like our Cherry. They bring a Quantity of it from Surat, but the most resinous of it is most valued, and it is distinguished into larger and lesser Pieces.

It is observable, that the Trunk of this Tree is of three Colours; the first Wood, which lies immediately under the Bark, is of a black Colour, solid, heavy, and almost like black Ebony; and by Reason of its Colour, the Portuguese call it Eagle-Wood. The Second which is a light veiny Wood, like rotten Wood, and of a tanned Colour, is what we call *Columbac* or the true Wood of Aloes. The third Sort, which is the Heart, is a precious Wood of *Tambac*, or *Calambac*: I shall say no more of it, having never seen any of it, but that it is very scarce and dear. *Pomet.*

The Arabians say, that on a Mountain of Comorin, grows the most precious of all Woods, which is that of Aloes, called by the Greeks *Xylaloe*, and by the Arabians *Ud*, and *Al Ud*, that is to say, *The Wood*, by Way of Eminence. It grows plentifully in that Place, and excels all that is imported from other Countries. *Herbelot, Bibl. Orient. Art. Cameron.*

All the Eastern Geographers agree, that this Wood, whose Smell is exquisite, grows only in those Countries of India which lie under the first Climate. The most valuable Sort of this Wood is in the Island called *Senf*, which lies in the Indian Sea, and the Passage to China. They call it *Al O'ud Al Senfi*, to distinguish it from what they call *Al O'ud Al Comari*; because it grows in another Island called *Comar*, not far distant from *Senf*, but whose Wood is far inferior to that of the other.

However, several Authors are of Opinion, that the Wood of Aloes of Camnon, or Comron, which is Cape Comorin, is the best. And this is what the King of India presented Nourchirvan with, to the Weight of ten Quintals, which ran and blazed in the Fire like Wax.

Some Geographers remark also, that the greatest Quantity of Wood of Aloes, comes from the Isle of *Seimender*, which we call

call Sumatra, and the Sheriff Al Edrissi says, that it is found also in the Isle of Serandib, called by us Zeilan. *Herbelot*.

This Noufchirvan is the same as Khosroes the first of that Name, King of Persia. This Prince, when he had finished his great Conquests, retired to his Capital, to spend the Remainder of his Days in Peace. All the bordering Princes sent Ambassadors to him, loaded with rich Presents. Amongst these were a Female Slave, seven Feet high; a Carpet made of the Skin of one Serpent, of an extraordinary Size, and as soft as Silk. A third great Rarity was the *Aloes-wood* mention'd above, sent him by the King of Indostan.

AGARICOIDES. A Sort of Fungus thus distinguished. *Agaricoides parvum, album, lamellis subluteis. Fungus parvus, lamellatus, pectunculiformis, albus adnascens*, Raii Syn. Vaill. 70. Dr. Martyn has found it in Woods, as in Bishop's Wood near Hampstead, and in Madingley Wood. *Tournefort by Martin*.

AGAPE. Ἀγάπη. Love. It also signifies an Afternoon or Evening Meal of Victuals.

AGAR. Calx. Lime. *Rulandus*.

AGARICUS. *Agaric* was mistaken by some of the Antients for a Root, as we learn from Dioscorides, who gives the following Account of it:

Agaric is said to be a Root like Silphium, though not of a close Surface and Contexture, like the Silphium, but all porous and spongy. There are two Kinds of *Agaric*, the Male and the Female; the latter is the best, and is distinguished by the strait parallel Veins that run within it. The Male is round, and every where uniform: However, they taste alike, that is, sweet at first, while they diffuse a Bitterness that stays on the Palate. *Agaric* grows in a Country of Sarmatia, called Agaria. Some affirm it to be the Root of a Plant; others say it is bred like Mushrooms, of Putrefaction, in the Trunks of Trees. It is produced also in Galatia, a Country of Asia, and in Cilicia, on the Cedars; but very thin and friable.

It has a warming and astringent Quality, and is effectual against the Gripes, Crudities, Fractures, and Bruises from Falls. The Dose is six Grains, in Wine mixed with Honey, if the Patient be free from a Fever; but if feverish, it is given in Water mixed with Honey. But for those who are affected with Distempers of the Liver, an Asthma, yellow Jaundice, a Dysentery, the Gravel or Dysury, Hysterics, or an ill Colour [*κακὸν χροίον*], the Weight of a Dram is prescribed. To consumptive Persons, it is administered in sweet Wine [*γλυκύος*] to the Splenetic in Oxymel. By those who are troubled with sour Belchings, or other Infirmities of the Stomach, it is chewed and swallowed raw, without any liquid Vehicle. Half a Scruple, taken in Water, stays Vomiting, or Spitting of Blood. The like Quantity in Oxymel is useful in the Sciatica, Gout, and Epilepsy, provokes the Menstrues, and is good for Inflammations in the Womb. Given before the Fit of an Ague, it takes off the Shaking. A Dram or two taken in Water, mixed with Honey, purges the Belly. A Dram of it taken in Wine, diluted with Water, is an Antidote against Poisons; and half a Scruple, in a Draught of Wine, cures the Bites of venomous Reptiles. In short, it is adapted to all internal Maladies, administered with Regard to Age and Strength, to some in Water, to others in Wine, to this Person in Oxymel, to another in Water mixed with Honey. *Dioscorides, Lib. 3. Cap. 1.*

The Root *Agaric* grows from the Trunk of a Tree, of a lax Consistence, compounded of an airy and earthy Substance. It has the Virtue of dissolving and incising gross Humours, and powerfully opening Obstructions of the Viscera. It has the Property of Colocynthis, working slowly, and not much disturbing the Stomach. It is given to the Weight of two Drams, in Honey and Water. Chuse what is whitest, very friable, and least ligneous and worm-eaten. *P. Aeginet. Lib. 7. Cap. 3 & 4.*

Agaric purges Flegm and Bile, and not violently. The Dose is two Drams in Honey and Water, or Oxymel. *Oribas. Med. Collect. Lib. 1. Cap. 17.*

The Root of *Agaric* tastes sweet at first, but soon after bitter, and at last leaves a Sort of Acrimony, and light Astringency on the Palate; whence it is evident, that this Medicine is compounded of an airy and earthy Substance, which is attenuated by Heat. But it participates least of an aqueous Essence. For these Reasons, it has the Faculty of digesting and incising gross Humours, and clearing the Viscera from Obstructions. *Oribas. Med. Collect. Lib. 15. Cap. 1. from Galen.*

By its digestive and incisive Qualities, it cures the yellow Jaundice, when it arises from an Obstruction of the Liver; the Epilepsy; takes off the cold Fits of an Ague, which arise from thick and glutinous Humours. *Oribas. Firt. Simpl. Lib. 2. Cap. 1.*

Agaric is thus distinguished by the Moderns:

Agaricus, Ger. 1183. Emac. 1366. Sterb. 245. Tab. 27. C. *Agaricus, five Fungus Laricis*, C. B. 375. Elem. Bot. 441. Tourn. Inst. 567. *Agaricus ex Larice*, Park. 249. *Agaricum*, J. B. 1. 268. Raii Hist. 1. 107. **AGARIC.** Dale.

There are two Species of *Agaric*: The Female *Agaric*, which is white, light, friable, and tender, sweet at first to the Taste,

but leaves a Bitterness behind, and is of a penetrating Smell; this is the best Sort. The other, called the Male *Agaric*, is yellow, compact, heavy, and tenacious; and this is good for nothing.

It is of the Class of the Fungi, and grows on the Trunks and largest Branches of many Sorts of Trees, especially the Larch and the Oak. It consists of a fistulous Wood: If it be beaten with a Hammer, and a Spark afterwards light upon it, it becomes all in a Blaze; whence it is called *Ignarius*. *Boerhaave*.

It does not shoot up in a Night, like the rest of the Fungi, but requires a whole Year for its Perfection. Dale.

If *Agaric* works not downwards, it is apt, in some, to cause a Tremor and Resolution. *Actius Tetr. 4. Serm. 1. Cap. 81.*

It is ranked among the poisonous Roots, Thapsia, Aconite, Ilias, white Hellebore, and Ephemeron. *Ibid. Cap. 45.*

The poisonous Sort is called *Black Agaric*, by *Actuarius*, *Meth. Med. Lib. 5. Cap. 12.* and *P. Aeginet. Lib. 5. Cap. 64.*

AGARIC is a woody, fungous Excrecence, that grows on the Body of old Larch-trees; outwardly it is covered with a hard, tough, brown Crust or Bark; which being pared off, the *Agaric*, is of a white Colour: That which is very light and friable, easy to cut, and without Knots, of a pure white Colour, is to be preferred. The Marks of the best *Agaric*, according to Dale, are contained in this Distich:

*Res frangi præsto pretiosus Agaricus esto,
Candidus et splendens, bonus in libra leve pendens.*

It is of a bitter, nauseous Taste, with an ungrateful Sweetness, which makes it rarely given by its self, but mixt with other purging Medicines.

It is accounted a strong Purger of watery and bilious Humours; useful in the Gout, Rheumatism, Dropsy, and Jaundice, and to cleanse the Lungs of tough Flegm, and is of Use in Epilepsies, and obstinate Head-achs. The best *Agaric* comes from Barbary; what comes from Russia, is not so good. What comes from the Woods near Trent, and those Parts near the Alps, is accounted the best, says Dale.

Official Preparations, are *Pilula de Agarico*, & *Agaricus Trochiscatus*. Miller, Bot. Offi.

It is corrected with Ginger, Clove Gillyflowers, Sal Gem. Crystals of Tartar, &c. Dale.

Agaric is an Excrecence, that is found upon the Trunks, and large Branches of several Trees; but chiefly upon the Larch-tree, called by the Latins *Larix*, and upon several Sorts of Oaks; but the best of all ought to be such as is white, light, tender, brittle, and of a bitter Taste, pungent, and a little styptic. And this is the *Agaric* the Antients used to call the Female. As for that which is termed the Male, it is usually heavy, yellowish, and woody, which ought intirely to be rejected from Physical Uses.

The best *Agaric* is that from the Levant, it being abundantly better than what comes from Savoy or Dauphiny. We have likewise some brought from Holland, that is rasped, and blanched, on the Outside, with Chalk. In short; none is fit for Use but the Levant *Agaric*.

Agaric was a Medicine so familiar to the Antients, that they made Use of it, not only for purging Flegm, but likewise in all Distempers proceeding from gross Humours and Obstructions; such as Epilepsy, Vertigo, or Giddiness of the Head, Madness, Melancholy, Asthma, and Distempers incident to the Stomach, and the rest of that Kind; yet they complained, that it weakened the Bowels, and purged too harshly; upon which Account, Galen steeped the Powder of it with Ginger, and gave it, to a Dram, in Oxymel, or Honey of Squills, it is prescribed, tho' rarely, from a Dram to two; but in Decoction, or Infusion, from two Drams, to half an Ounce.

By a chymical Solution, it passeth almost all away into Oil. It yields no volatile Salt, but abounds with a Sort of scaly Earth, and an acid Flegm, from whence the Infusion of *Agaric* makes blue Paper of a purple Colour. Hence it clearly appears, that it ought to be corrected with Cloves, Cinnamon, Mace, Mint, Worm-wood, and others of this Kind. Its Slowness in Working may be helped or promoted with Scammony and Calomel; or it may be wetted in some purging Decoction, made of Asarabacca, Sena, and other Purgatives, and then dried again, and formed into Lozenges, adding Balsam of Peru, or Oil of Cinnamon.

We must not forget to take Notice that Lusitanus admonishes us to make Use of the Troches of *Agaric*, or Lozenges, while they are fresh, and new made, lest their Virtue be weakened by long Keeping. *Pomet*.

Agaric appears to have been in high Esteem with the Antients, however, disregarded by the Moderns, for good Reasons. It is very slow in Operation, and, by its long Stay in the Stomach, excites Vomiting, or, at least, insupportable Nauseas, followed by Sweats, Faintings, and long Weakness, with a lasting Aversion for all Kinds of Food. Very likely

the Antients, who had not so great a Choice of Purgatives as we have, were not so delicate.

Agaric is a Kind of Fungus, that grows upon the Larch-tree. Some take it for an Excrescence, or Tumor, produced from a Disease in the Tree: But M. Tournefort makes no Scruple to place it with the other Fungi among the Plants. 'Tis supposed, that what is brought to us from the Levant, which is the best, comes from Tartary. We have it also from the Alps, the Mountains of Dauphiny, and from the Trentine. There is a bad Sort of *Agaric*, which does not grow upon the Larch-tree, but upon Oaks, Beeches, &c. whose Use would be very pernicious. To proceed, *Agaric* is divided into Male and Female. The Male is of a rough and uneven Superficies, its inner Substance very fibrous, ligneous, not easily separated, ponderous, and of various Colours, excepting white. The Female, on the Contrary, has a fine smooth Superficies, of a brown Colour, and under that a white friable Substance, easily reduced into a Meal, and consequently light and porous. Both of them taste sweet at first upon the Tongue, but leave a Bitterness, and Acridness behind them, especially the Male, which is never used in Medicine; and perhaps this is what never grows upon the Larch-tree.

M. Boulduc made Experiments upon the Female *Agaric*, with the two grand Dissolvents, the Sulphureous and the Aqueous. He extracted, with Spirit of Wine, a resinous Tincture, of an intolerable Smell and Taste. A Drop of it, put upon the Tongue, raised a Vomiting, and caused a Disgust to every Thing for the whole Day. Two Ounces of *Agaric*, yielded six Drams and a half of Tincture. The Residuum, which weighed but nine Drams, would afford no more; it was nothing but a Mucilage, or a Sort of Mud.

Upon this, M. Boulduc began to suspect, that this useless Mucilage, which was in so great a Quantity, might come from the farinaceous Part of the *Agaric* after it was thus moistened and macerated, and the resinous Tincture only from the superficial or cortical Part. He assured himself of this by Experiment, for having separated the two Parts, he extracted all his Tincture from the Outer, and hardly any from the inner Substance; which shews, that the former is the only Cathartic, and all of it that is useful, supposing it be used, for it is always very disagreeable, creating great Nauseas, and must be mixed with other Cathartics, to diminish its ill Effects.

The aqueous Dissolvents had no extraordinary Success upon the *Agaric*, more than the other. Water, by itself, extracted nothing: Nothing came off it, but a thick Mucilage, with a Dirt, and no Extract. Water with the Help of Salt of Tartar, the alkaline Salts of Plants, usually dissolving their resinous Parts, produced another Mucilage, which, after some Days Settlement, shewed its upper Part transparent, in form of a Jelly, and very different from the Bottom, which was very close and dense. From this upper Part, separated from the other, M. Boulduc drew, by Evaporation, in a gentle Heat, an Extract of a pretty good Consistence, which ought to contain all the resinous and saline Parts of the *Agaric*, one extracted by the Water, the other by the Salt of Tartar. Two Ounces of *Agaric*, with half an Ounce of Salt of Tartar, yielded an Ounce and half a Dram of that Extract. It purges very well, without Nausea, and much more gently than the resinous Tincture, extracted by the Spirit of Wine. As to the under Part of the Mucilage, it does not purge at all, being no more than the Earth of *Agaric*.

M. Boulduc having used distilled Vinegar, instead of Salt of Tartar, and after the same Manner, he obtained an Extract in all Things like the other, and of the same Virtues, but in a less Quantity.

The Distillation of *Agaric*, yielded M. Boulduc, a good Quantity of volatile Salt, and a little essential Salt. There was very little fixed Salt in the *Caput Mortuum*.

The Male *Agaric*, which M. Boulduc calls False *Agaric*, with which he would not have troubled himself; but that he was willing to neglect nothing in this Affair, has very few resinous Particles, and still fewer of volatile or essential Salt. Whence it seems to proceed only from old rotten Trees, who have undergone a Resolution or Dissipation of their active Principles.

The Infusion of this *Agaric*, in Water, turns it as black as Ink, when mixed with a Solution of Vitriol. The Use of Male *Agaric* is to dye Black, and hence we see a good deal of Agreement between it and the Gall, which is an Excrescence of a Tree. *Histoire de l'Academ. Royale*, 1714.

Lemery says, the Dose of *Agaric* is from half a Dram to a Dram and a half in Infusion.

Agaric is so variously described by the Antients, and with Characters so different from those of the modern Drug of that Name, that I am forced to believe they are not the same. What it was, or whence it came, was not thoroughly understood by the Antients themselves. You may learn its Country by its Name; for Dioscorides would have it called *Αγαρικόν*, *Agaricon*, because it grows in the *Αγρία*, in Agaria; and yet he tells us, that it is generated in the *Αγρία της Σαρματίας*, in Agria, a Country

of Sarmatia; but then its Name would not be *Agaricum*, but *Agricum*, or *Agricum*. The foregoing is rendered wrong, by some Interpreters, *In incultis & agrestibus Sarmatiae, In the wild and uncultivated Regions of Sarmatia*. The *Αγριαί*, *Agriai*, in Stephanus, are a People of Pannonia, between Hæmus and Rhodope; and Strabo places the *Αγροι*, *Agri*, near the Palus Mæotis, which would be more to the Purpose, for their Country would then be called *Αγρία*, *Agria*. But still the Nomen *αγρικόν* [Name formed from that of the Country] would be *Αγρικόν*, *Agricum*, not *Αγαρικόν*, *Agaricum*, which requires that the Country from whence it is called be named *Αγρία*, *Agaria*. But where is this Agaria? Ptolemy mentions the River Agar, and the Agarian Cape in European Sarmatia. The Sheep of the same Place are called *Αγαρικά*, *Agarican*, in an Epigram of Crinagoras among the Anecdotes. It describes a strange Kind of Sheep that came from Agaria, which it seems to make a Country of Armenia, situated upon the River Araxes:

Τῆς οὐκ ἔστι γὰρ μὲν Ἀγαρικὴ, ἐνὶ Ἀρμένίᾳ
Ἰδὼν παρθένους κίνας Ἀρμενίας, &c.

But the Incoherence of the Sense proves, that there is something wanting in the Beginning of this Epigram, which we are to supply by saying, that the Breed of these Sheep was brought from Agarrica, a Country of Sarmatia, into Armenia. The old Scholiast on this Epigram remarks, that this Kind of Sheep were found not only in Armenia but Scythia. I make no Doubt but the *Αγροι*, *Agri*, of Strabo, L. 11. ought to be read *Αγαροι*, *Agari*, and the *Αγρία*, *Agria*, of Dioscorides is put by Mistake for *Αγαρία*, *Agaria*. From thence comes *Agaricum*, and οὐκ ἔστι *Αγαρικὴ* in Crinagoras, who doubled the *Rho* for the Sake of the Metre, as we read *Ἀγρικία*, and *Ἀγρικία*. Well then *Αγαρικόν*, *Agaricum*, comes from the *Agarians*, a People of Sarmatia, and being so far fetched, I do not wonder that the Antients knew so little of it, but should much wonder, if the Moderns were better acquainted with it. Nay, we may conclude, from what has been said, that what is now sold for *Agaric*, is not *Agaric*, if it be fetched no farther than the Mountains of Trent, or Tyrol, and the Country of the Grisons, where Larch-trees abound; for they say it is produced from no other Tree but the Larch-tree. But had the Antients found that *Agaric* grew so near their Doors, and on so common a Tree, they had not been at so great a Loss, about its Nature as well as the Place of its Growth. Dioscorides doubts whether it be a Root, but takes it on Report. *Αγαρικὸν ῥίζα φέρεται σιλφίῳ ἑμφερές*. “*Agaric* is said to be a Root resembling Silphium.” The Root of Silphium, according to Theophrastus, is a Cubit long, and has a tuberous Head, which appears above Ground. If the modern *Agaric* be compared with this Description, it will hardly stand the Trial, for it is a mere Fungus of the Larch-tree, of that Sort of Fungi which grows and adheres to the Trunks of old Oaks, and served the Antients instead of Tinder, to light their Fires. The later Greeks call it *ῥοκας*, that is to say, *Esca*, *Baits*. Had the *Agaric* of the Antients been thus qualified, they could hardly have questioned its being a Root not unlike the *Laserpitium*. But Pliny plainly signifies *Agaric* to be a Fungus, growing chiefly on glandiferous Trees in Gallia. “It is, says he, a white Fungus, odoriferous, medicinal, growing on the Tops of Trees, shining in the Night, whence it takes its Characteristic, which is to be gathered in the Dark.” Dioscorides says not a Word of this Sort of *Agaric*. As for Pliny, I do not question, but a Piece of Wood, putrefied to the Degree of shining by Night, was imposed upon him for *Agaric*. I have often seen the like in Burgundy, and held it in my Hands. It is a Piece of Oak, putrid, white, and odoriferous. It smells like a Sort of Mushroom, commonly called *Potirones*, and shines by Night at such a Rate, that it frightens those who are just awake from Sleep, and know nothing of the Matter, with its wonderful Lustre. The Peasants call it *Shining Wood*. It is indeed of a fungous Nature, and a thin Contexture, as Dioscorides describes his *Agaricum*; and hence Pliny, or he from whom he borrowed it, suspected it to be a Fungus. But this Rareness of Contexture is not natural but adventitious; for it is a Wood which becomes thin and fungous by Putrefaction. Besides, it has strait Veins within its Substance, as Dioscorides relates of the Female *Agaric*. Lastly, he tells us, from the Opinion of others, that *Agaric* is generated by Putrefaction, and grows on certain Trees; and this too is true of our *Shining Wood*. The Words of Dioscorides, in which he recounts the various Opinions concerning the Rise and Generation of *Agaric*, are written in a very antient Copy, which is widely different from the Vulgate, after the following Manner: *Αἱμα δὲ διὰ μὲν φυτόν ἐστιν, τινὲς δὲ διὰ σπέρματος διδόναι κατὰ σῆμα γίνεσθαι. καθάπερ καὶ διὰ μύκητος ἐκφυέσθαι. i. e. Some say it is the Root of a Plant; others that it is generated from Setine-trees by Putrefaction, after the Manner of Fungi.* The Passage, as it stands thus, is much to be preferred before that in our Edition. Mark his Words: He does not say it is a Fungus, but is generated, like a Fungus, from a Tree, suppose an Oak, or another Tree.

Tree. Now the common *Agaric* is plainly a Fungus of the Larch-tree. And indeed, if *Agaric* were a Fungus, it could never have entered into the Heads of the Antients to fancy it the Root of a Tree, especially when it is reported to resemble the Root of *Laserpitium*, which, they say, is above a Cubit long, and of a competent Thickness.

Let us now inquire what are those Setine-trees from which Dioscorides writes that *Agaric* is generated by Putrefaction; for so are the Words in that forementioned choice Manuscript, which is written in larger Letters than ordinary, τὴν δὲ ἐν στήναις, &c. as before; whereas our Editions have it: τὴν δὲ ἐν τοῖς εὐχέσιν τῶν δένδρων, i. e. others say in the Trunks of Trees. As Decay begets *Agaric* on Trees, so Corruption, rather than Corrosion, begot this Reading. We know that Avicenna read σήπινα δένδρα in Dioscorides, by his Version of the same; for he translated that whole Chapter of Dioscorides concerning *Agaric*, and rendered σήπινα by *corrofas*, *corroded*, as if it were σπιδέζοντα. Nay, in the Beginning of the Chapter, he cites Dioscorides by Name, in the Arabic Edition, not the Son of Mesue, as it is in the Latin Version. Serapion also reads Dioscorides after the same Manner, for, after mentioning him, he quotes all his Words, and renders this Passage thus, according to the Latin Interpreter: *Et quidam dicunt quod generatur in putrefactione Arborum, quando corrodamur, sicut generantur fungi. Some say it is generated in the Putrefaction of Trees, when they are corroded, as Fungi are generated; where it is plain, that he takes σήπινα, setina, for σπιδέζοντα, setobrota, corroded.*

This Depravation of the Text in Dioscorides is of such Antiquity, that all the Copies I have seen, except that most ancient one, agree with the Vulgate, in reading ἐν τῇς εὐχέσιν τῶν δένδρων, in Truncis Arborum, in the Trunks of Trees. But the Original was not altered in the Days of Avicenna and Serapio. They had however the Misfortune to make a wrong Interpretation of a right Reading; for, I believe, none who understands Greek will acquiesce in their Exposition of σήπινα, *setina*, by *corrofa*. For, in the first Place, the Greeks do not call those Worms which corrode Wood, σήπας, *Setas*, but βήπας, *Thripas*, and σκώληκας, *Scolecas*. Hence they call σκωληκίζοντα δένδρα, *Scolecobrota dendra*, and βήπιδα, *thripedesta*, *Worm-eaten Trees*. Sut σήπ, *ses*, properly signifies a Worm, or Moth, that lives among Garments; hence σπιδέζοντα ἱμάτια, *setecopa himatia*, *Moth-eaten Clothes*. Again, I think, that σήπινον, *setinon*, can by no Means, according to the Greek Idiom, be put for σπιδέζοντον, *Setobroton*, or σπιδέκοπον, *Setocopon*; and all that are well versed in the Greek will agree with me. For who ever found σκωληκίνον, *scolecinum*, to signify what is corroded by Worms? At this Rate of Etymology, a Man bitten by a Dragon must be said to be δρακόντινος, *Dracontinus*; one stung by a Viper, *Viperinus*; and another, devoured by a Serpent, *Serpentinus*. Lastly, *Agaric*, indeed, springs from a Decay by Putrefaction in Trees, but not from their Corrosion by Worms. For the Fungi, which have the same Principles of Growth, as owing their Rise to Putrefaction, yet delight to grow on whole Trees. A little after, Dioscorides adds, that it grows in Galatia and Cilicia on Cedars, but does not say that these Cedars were Worm-eaten.

It remains therefore for us to conclude, that σήπινον, *Setinum*, is the Name of a particular Sort of Tree, on which *Agaric* grows, according to the Report of those from whom Dioscorides had it, for no other Interpretation, but what is false, can be given of the Word in this Place. And after all my curious and diligent Enquiry, I could find no Tree among the Greeks, that would agree with this Name and Place, except that celebrated one, so often mentioned in *Holy Writ*, where we read that this and that Utensil or Structure was made or fabricated of Wood of *Setim*, for the Ark of the Covenant, and the Tabernacle with most of its Vessels, were made of this Wood. They call it עֵשֶׂב *Sittim*. It was otherwise written, שֵׁטִימ, *Setim*, as the vulgar Version has it *Ligna Setim*, *Wood of Setim*, and it was commonly understood to signify the finest and choicest Sort of Cedar. From this שֵׁטִימ, I could almost swear, some Hellenistical Writers formed their σήπινα δένδρα, *setina dendra*, to signify Cedars. So from Φιλίστιν, *Philistin*, comes Παλαιστίνη, *Palestini*, and from Χερουβίμ, *Cherubini*. The Arabians also say *Cherubin* for the Hebrew *Cherubim*; and σήπινα δένδρα, *Setina dendra*, is said after the Manner of Κεδρίνα δένδρα, λεύκηνα, δρύινα, *Cedrina leucina, dryina, dendra*, in the same Dioscorides, *de Bryo, Lib. 1. Cap. 20*. It was very natural therefore for the Hellenistical Writers, to put σήπινον δένδρον, *setinon dendron*, *setine Wood*, for the Hebrew עֵשֶׂב, *Setab*, or *Sittab*, which is of the singular Number, and makes in the Plural *Setim*. It is put for a Kind of Tree, *Isai. XLI. 19*, where some erroneously join it with הדס, *Hadas*, a Myrtle, in Nature of an Adjective. Others combine it with the preceding Name of a Tree, which they interpret the Cedar, עֵרֶז שֵׁטִימ, *erez sittab*, which they would have to be the best Sort of Cedar. But there are three Kinds of Trees reckoned up in that Place, *Erez*, *Sittab*, and *Hadas*; if then *Erez* be a Cedar, *Sittab* will be another Sort of Tree. And, indeed, the Arabians call the Cedar by the Names of *Erz* and *Erza*; but most take *Sittab* for the choicest Kind of Cedar, which Opinion of theirs seems confirmed by this Place, where the σήπινα

δένδρα, *setina dendra*, are κεδρίνα, *Cedrina*, *Cedar-wood*. The Septuagint for *Wood of Setim* constantly render ἀσπίλα ξύλα, *incorruptible Wood*; now Incorruption is a Property of the Cedar, which is not sensible of Age or Rottenness. “The Matter of it,” says Pliny, lasts to Eternity, therefore the Images of the “Gods were made of it.” The incorruptible Nature of the Cedar is also celebrated by Theophrastus. What Dioscorides writ about *Agaric*, he collected from different Authors; so that when he found in one that *Agaric* grew ἐν στήναις δένδρων, on *Setine-trees*, and in another, that it flourished ἐν κεδράν, i. e. upon Cedars, he concluded they were different Trees; whereas they who asserted that *Agaric* grew on *Setine-trees*, and the others, who would have it to be generated from the Cedar, said both the same Thing, for the *Setine-tree* is the Cedar.

But if *Agaric* grows on Cedars, I do not see how it can come from Scythia or Sarmatia, where are no Cedars. But it took its Name from *Agaria Sarmatica*. Let others examine into the Reason of that. Theodotion translated *Setim*, a Thorn, ἀκανθῆς; and indeed, there is a thorny Kind of Cedar, which the Greeks call ὀξύκεδρον, *Oxycedrum*, which grows plentifully in Lycia and Cilicia; and there *Agaric* also is very common, as Dioscorides writes from bare Report. But Theodotion meant quite another Thing than the *Oxycedrum*, or thorny Cedar. Jerome expounds it to be a Tree that grows in the Wilderness, like the white Thorn, whose Wood is incorruptible, and the smoothest (λευκότερον) of all Woods, and for Strength, Solidity, Brightness, and Beautifulnes, as far exceeding them. This is very applicable to the Egyptian Thorn, which the Greeks call ἀκανθῆ, or ἀκανθα, the Thorn, by Way of Eminence. It grows in the Deserts, is incorruptible and everlasting, and remarkable for its Firmness and Brightness. By saying it is like the white Thorn, Jerome means the *Oxyacanthus* of the Greeks, which we also call white Thorn at this very Day. It is called white Thorn by Columella also. And the Comparison is not amiss between the Egyptian Thorn and this white Thorn. For the Egyptian Thorn is not very tall, nor does the white Thorn grow to a Tree of any considerable Height. Theophrastus makes two Kinds of Egyptian Thorn, the *White* and the *Black*. The *White* is of no firm Substance, but Subject to Putrefaction; the *Black* is solid and incorruptible, therefore its inner Substance, or Heart, is used in Ship-building. Pliny, speaking of the Trees peculiar to Egypt, says, “Nor is the “Thorn of this Country less worthy of Notice, that is, the black “one, for it endures under Water incorrupted, whence it is “very useful in building the Sides of Ships.” Of this Thorn must Theodotion be understood, when he renders *Setab* and *ligna Setim*, by Ἀκανθα, *Acantha*, and Ἀκανθίνα, *Acanthina*; the Name will suit with nothing else. For the Arabians call this Tree *Seitan*, or *Salen*, which may also be read *Sitan*. It is that Thorn from which they gather the Gum Arabic, and make the *Acacia*. Alphagus, in his *Index* to Avicenna, says, “*Alcharad*, “or *Alchara*, or *Alchrath*, is the Fruit of the great thorny Tree, “which grows in the Country called *Ballera* in Egypt, and is “called by the Egyptians *Setan*.” Prosper Alpinus says, it is called *Sant*. “*Acacia*, which the Egyptians call *Sant*, grows in “those Parts of Egypt, which are most remote from the Sea.”

The Fruit of the Egyptian Thorn is called in Arabic *Karath*, from the Greek Κεράτιον, which signifies a *Husk*; with the Article *al*, *Alkarath*, for its Fruit is a Husk, according to Theophrastus. I make no Doubt, but the *Sittab*, or *Setab*, of the Hebrew is the same with the *Setten* of the Arabians, which is the Egyptian Thorn that grows in the Desert, and is rightly translated by Theodotion Ἀκανθα, *Acantha*. For in the Place of *Isai* above quoted, *Setab* is manifestly distinguished from the Cedar, which the Arabians, as well as Hebrews, call *Erez*. Besides the Name all their Characters agree. Yet the Hellenistical Authors, from whom Dioscorides borrowed his Information, that *Agaric* grew on *Setine-trees*, seems to have taken them for Cedars, as that Word is generally interpreted; for it was the prevailing Opinion that *Agaric* was generated on Cedars.

Many other Things did Dioscorides borrow from Hellenistical Writers, who translated foreign Words into their own Greek Idiom; as when he says of *Cancamum*, that it was a Tree, Ἀραβικὸν ξύλον, *Arabici Ligni*, for Ἀραβικὸν δένδρον, *Arabice Arboris*; which is according to the Syriac Idiom, and quite remote from the Greek. So in his Account of the Palm-tree, he tells us that the unripe Date, while it is yet in its Husk, is called ἑλάτη, *Elater*, and by some βόρασσος, *Borassus*; which is purely Hebrew, only transposed for βόρασος, *Bossarus*; for בסר, *Beser*, is a *four Grape*. The Arabians also call an unripe Date *Besser*, which the Greeks, who adopt the Arabic Terms, name *Borax*. An ancient Interpreter of Avicenna has it *Buffurum*.

Pliny, *Lib. 16. Cap. 8*, will have *Agaric* peculiar to Gallia, and a Fungus of glandiferous Trees; but in *Lib. 25. Cap. 9*, he says it is generated like a Fungus on the Trees about the Bosporus. These are very different Accounts; and yet in this last he mentions the Gallican *Agaric*, which, he says, is thought to be of a weaker Kind. Perhaps he was led into an Error by the Homonymy of the Words in the Name *Galatia*, which with the Greeks signifies both *Gallia* and *Galatia*. Dioscorides always calls this last *Galatia* τῇ κατ’ Ἀσίαν, *Galatia which is in Asia*;

to distinguish it from the other Galatia, that is in Gallia, which in another Place he calls *Γαλατία κατ' Ἀπέναν*, Galatia, in which are the Alps, L. 3. C. 28. But, to come to a Conclusion, the Gallican Agaric of Pliny seems quite different from the Galatian Agaric of Dioscorides. The latter grows on Cedars, like a Fungus. Pliny's Agaric is a Fungus peculiar to glandiferous Trees, and shines by Night, which are the very Characters, as I said, of the putrefied Wood, most commonly Oak, which so remarkably glitters in the Dark. Dioscorides, in his Description, has divided Agaric into Male and Female, and takes no Notice of the Distinction into White and Black. But in another Place, Lib. 5. he mentions black Agaric among the Poisons, and reckons it in the List of venomous and deadly Roots, which, according to his Account, are Hellebore, Ixias, black Agaric, and the Ephemeron, which some call Colchicum. I wonder, he says nothing of it in his Chapter of Agaric. I suspect the Male Agaric was the black and the poisonous Sort, though he says no such Thing there. "But the Male Kind is not good, but hard and black," says Avicenna. The two Kinds are made to differ very much in Form and Substance, according to Dioscorides; and yet their Tastes, he says, are alike. The Moderns set the highest Value on that Agaric which is most friable. Dioscorides depreciates the Cilician and Galatian Agaric on that very Account, because it is of a weak Contexture, and very friable.

All these Things considered, I am almost persuaded that the Agaric of the Antients was not the same with that which now passes under that Name. I read in Isidore, that Agaric was the "Root of the White Vine." Hesychius tells me, that Agaric was "an Herb so called by Physicians." He terms it an Herb, because others had made it a Root. Galen, L. 7. Περὶ δυνάμεων, after he has named Agaric, and declares its Virtues, begins, as it were, again, with mentioning the Root of Agaric, in these Words, which are corrupted. Ἀγαρικὸν ἔστι τὸ ἐν τῷ κορμῷ τοῦ δένδρου. i. e. "The Root is what grows to the Stock of the Tree." They seem an Interpolation, except you read them thus: Ἀγαρικὸν ἔστι τὸ ἐν τῷ κορμῷ τοῦ δένδρου, i. e. "That is be accounted the Root of Agaric, by which it grows to the Trunk or Body of the Tree." The Arabians have nothing about Agaric, but what they learned from the Greek Books. The Name they have for it is purely Greek, viz. *Garicon*, and in an old manuscript Translation of Dioscorides into Arabic, you have the Word kept intire, viz. *Agaricon*. *Salmas. de Homonym. Hyl. Iatric.*

There are several of the Fungi which are also called Agarics, as :

Agaricus digitatus maximus, ex luteo, coccineo, & nigro colore elegantior variegatus.

Agaricus villosus tenuis, inferne levis, C. Giff. 193. Fungus arboreus villosus, inferne planus, Doody Syn. 2. App. 335.

Agaricus membranaceus sinuosus substantia gelatinæ, C. Giff. 194. Fungus membranaceus parvus aureus, Sterb. P. 242. Spec. 113. T. 26. Luteus Sambucino similis, colore sui manus inficiens, Geniste vulgari spinosæ adnascens, Merr. Pin. putridus arborum ramis inherens, plurimis simul coherentibus, C. B. Pin. 372. 2. Fungi dicti spongiæ lignorum perniciosi, J. B. 3. 841. F. perniciosi, Gen. 24. Species 3. Clus. H. 288. Syn. 2. 19. 40. On rotten Wood in England and Ireland. Observed by Dr. Sherard and Mr. Dale.

Agaricus mesentericus violacei coloris, C. Giff. 194. Fungus arboreus purpureus corrugatus, Doody Syn. 2. App. 336.

Agaricus Lichenis facie variegatus, Inst. R. H. 562. Fungus saligo s. Lichenis forma variegatus, C. B. Pin. 372. 7. Quartus perniciosus, Clus. H. 277. Depictus, Sterb. 240. T. 26. A. Fungi Salinum, colore varii, perniciosi J. B. 3. 842. Nec lamellatus, nec porosus est. A. D. Sherard observatus.

Agaricus pedis equini facie, Inst. R. H. 562. Fungus durus sive ignarius, Park. 1323. (fig. mal) in caudicibus nascens, unguis equini figura, C. B. Pin. 372. 3. F. arbori ad ellychnia, J. B. 3. 840. Touchwood or Spunk.

Agaricus intybaceus, Inst. R. H. 562. Fungus intybaceus, J. B. 3. 830. Syn. 2. 14. 21. Arboreus maximus porosus, diversimode se dividens & protrudens, Doody Syn. 2. App. 336.

Agaricus officinali similis, C. Giff. 192. Agarico similis Fungus diversarum arborum caudicibus adherens, C. B. Pin. 375. 2. Fungus arboreus albidus maximus, seu Agaricus spurius, Doody Syn. 2. App. 335.

Agaricus porosus rubens carnosus, hepatis facie, C. Giff. 192. Fungus hepatis facie & colore, Merr. Pin. Arboreus rubens carnosus, hepatis facie, Doody Syn. 2. App. 340.

Mr. Doody found it near Hally in Kent, and since received it very fair from Mr. Chaplin, gathered in Suffolk, as you go from Sir Robert Dillington's House to the new Church in the Isle of Wight. *Merr. Pin.*

Agaricus multiplex porosus, C. Giff. 193. Fungus circum gradatim perficiens, cujus diameter quandoque triginta vel plures pedes conficit, Merr. Pin. In montosis pascuis non infrequens, referente Merret. Memorabili est magnitudinis & plures juxta se oriri solent, qui satis latum spatium ambitu suo complectuntur.

Agaricus porosus ignarius Fagi, superne candicans, inferne fuscus, C. Giff. 193. Fungus pedem equinum referens, subtus foraminosus, Dood. Syn. 2. App. 330. Ad arbores. Ignarius dicitur, quod caro ejus in fomitem igni concipiendo idoneum præparari queat.

Agaricus porosus ignarius Carpini, C. Giff. 193. Fungus arboreus maximus fuscus, subtus planus, Doody Syn. 2. App. 335. Lateraliter Ulmo adherentem prope Epsum invenit D. Plukenet.

Agaricus varii coloris squamosus, Inst. R. H. 562. Fungus arborum & lignorum putrescentium, coloris varii, Syn. 2. 18. 31. Cerasorum imbricatum alter alteri immatus variegatus, C. B. Pin. 372. 8. Fungi Cerasorum coloris varii perniciosi, J. B. 3. 842. Fungus semicircularis durus, multos durans per annos, Merr. Pin. Holofericeus iridiformis quasi, colorum alternatione variegatus, Cat. Alt. Inferne foraminulentus est, non lamellatus, colore albicante. Non Ceraso tantum, sed & aliis passim arboribus adnascitur.

Agaricus villosus & porosus, substantiæ coriaceæ, C. Giff. 193. Fungus arboreus variegato illi Cerasorum, &c. C. B. Similis, sed hirsutior, foraminulis etiam majoribus, Doody Syn. 2. App. 336. Arboribus junioribus plerumque adnascitur.

Agaricus villosus, lamellis sinuosis & invicem implexis, C. Giff. 192. Fungus arboreus villosus albus, foraminibus oblongis, semicircularis, Doody Syn. 2. App. 335.

Agaricus quernus lamellatus, coriaceus albus, C. Giff. 191. Fungus arboreus inferne foraminibus longis & rotundis insculptus, Doody Syn. 2. 18. 33. Hic a D. Dale pariter observatus.

Agaricus quernus lamellatus coriaceus villosus, C. Giff. 191. Fungus arboreus holofericeus, inferne lamellatus, Syn. 2. 14. 26.

Agaricus parvus lamellatus, peduncululi forma elegans, C. Giff. 192. Fungus parvus lamellatus, peduncululi forma Alno adnascens, Syn. 2. 14. 27. Common in Woods in Ireland. Dr. Sherard. In the Woods near Dulwich, and many other Places. Mr. Doody.

Agaricus parvus lamellatus croceus, e Corylorum ramulis dependens. Undulatus est & figura sua lobum nucis juglandis non male refert. Croceo colore manus inficit. Corylorum ramis aridis & emortuis plerumque adnascitur.

Agaricus coriaceus longissimus, pedunculim inferne divisis. Raii Synopsis Methodica.

AGARICUS also is a Name for the *Marga Candida*, or white Stone Marl. See MARGA.

AGASYLLIS. Ἀγασύλλης. According to Dioscorides, the Shrub (θάμνος) that produces the Gum Ammoniacum, L. 3. C. 98. See AMMONIACUM.

AGATHARCIDES. An Author quoted by Plutarch, *Symposiac. L. 8. Probl. 9.* as giving an Account of the endemial Distempers, to which the Inhabitants of the Coasts of the Red Sea were subject. For this Reason Le Clerc ranks him amongst Physicians. But in Reality he was not of the Profession. He wrote amongst other historical Pieces an Account of the Red Sea, and in this gives a Description of the Dracunculi, a Sort of Worm of a considerable Length, that breeds in the muscular Parts of the Legs and Arms. See DRACUNCULI, and UENA MEDINENSIS.

Agatharcides, who is distinguished from other Authors of the same Name, by the Appellation of *Cnidius*, lived in the Time of Ptolemy Philometor, who reigned about 130 Years after Alexander the Great. He wrote many Treatises, as we learn from Photius, but nothing relating to Physic, except what the natural History of the Red Sea led him into.

His Works are lost.

AGATHINUS. A Physician quoted by Galen, Cælius Aurelianus, and Aetius. He wrote upon Hellebore, and the Pulse, and other Subjects. He was of the Pneumatic Sect, and consequently a Follower of Athenæus. Suidas informs us he was Master to Archigenes, who practised Physic at Rome, in the Time of Trajan. His Works are lost.

AGATHON. Ἀγάθων. The common Signification of this Word is *good*. But, according to Galen, Hippocrates uses it in a Sense somewhat different from other Writers, which is no uncommon Thing, both with Respect to this Word and many others. In this Author it sometimes signifies *certain, firm, true, or perpetual*.

AGATHONIS ANTIDOTUS HEPATICA. *Agathon's Antidote for the Liver.* This is a Medicine described by Myrepsus, S. 1. C. 268. It is thus prepared :

Take of Gentian six Drams; of Elcampane, Wormwood, Spikenard, each one Dram. It is given to severish Patients in Water, to others in Wine.

AGATY H. M. *Galegæ affinis Malabaricæ arborescens, siliquis majoribus articulatis, D. Syen.*

It is four or five Times the ordinary Height of a Man, and its Body as much as a Man can fathom. The Branches that grow out of the Middle and Top of the Tree, extend themselves in Height more than in Breadth. It grows in sandy Places. The Root is of a dark Colour, and spreads its hairy Fibræ all around to a considerable Compass, and is of an astringent Taste. The Wood is of a soft Substance, and its inmost Pith, or Heart, softest of all. If an Incision be made in the Bark, there distils from it a thin and watery Liquor, which afterwards grows thick and gummy. The Leaves are pennated, almost a Span and a half long, two Lobes being connected to the main Rib, directly opposite to one another, the Pedicles very short, and bending forwards, the Lobes small, of an oblong Figure, and roundish

roundish at the Edges, about an Inch and half long, and a Finger's Breadth wide, almost of an equal Breadth from the Base to the Top, of a pretty close Contexture, and very soft, of an extraordinary Smoothness, of a lively Green on the upper Part, but fainter beneath, smelling like Beans, if they are rubbed. From the main Rib issue fine subtile Veins, which disperse themselves over the Leaf. The Leaves shut in the Night, with their opposite Lobes drawn close to one another. The Flowers which are of the papilionaceous Kind, and have no Smell, grow four, five, or more, on a little Twig, or Stalk, that comes out from the Axæ of the Leaves. The Flowers consist of four Leaves or Petals, which have this Peculiarity, that one of them, which raises itself above the rest, and two lateral ones bend in an Angle, are somewhat thick, whitish, and striated with Veins lengthwise; and the fourth, which is the broadest, is a round Oblong, striated with numerous subtile Veins, which proceed from the Base lengthwise, being first whitish, then yellowish, and a purplish Red. The Stamen forms an Angle, and is divided at the Summit into Filaments, or Threads, bearing oblong yellow Apices. The Calyx or Cup is deep, surrounding the Bases of the Petals with four short roundish Leaves, of a faint green Colour. The Flowers are succeeded by Pods, four Spans long, and a Finger's Breadth wide, somewhat round, strait, green, of a thick Rind, and containing Beans of an oblong Figure, each in its proper Cell, separated by carnos Partitions, placed lengthwise in the Length of the Pod, somewhat protuberating, tasting like a Bean, and exactly resembling our Kidney-beans, only they are less, and turn whitish, or a greenish White; when they are ripe, they serve for Food.

It bears Flowers and Fruit, in rainy Seasons, two or three Times a Year, and sometimes, though but seldom, all the Year round. The Root mixed with the Urine of a Cow, and applied to the Place, dissolves Tumors. The Juice of the Bark mixed with Honey, and used in Gargarisms, is good for the Quinsy, and Pustules in the Mouth. The Bark, boiled in Water and eaten, is beneficial in the Small Pox. The Juice of the Leaves, drawn up the Nostrils, relieves the Patient under inveterate Quartans, when the Day of the Fit comes. The Decoction of the Leaves purges pituitous and bilious Humours, and the Leaves themselves so eaten give Relief in the Vertigo and Cholera Morbus. The Flowers boiled are prescribed for a Catarrh, which Way they are also said to incite to Luxury. The Juice of the Flowers, dropped into the Eyes, takes away Films and restores the Sight. Ray, Lib. 31. Cap. 23.

AGELÆOS. Ἀγελᾶος. Gregarious, vulgar. It is sometimes joined with ἄγρος, and used to express the coarsest Sort of Bread. Athenæus.

AGEM. A Name of the *Syringa Persica*, or *Lilac Persicum*. Incis. Foliis. See SYRINGA.

AGER CHYMICUS. Dorneus in his *Genealogia Mineralium* says, Water is the Field (*Ager*) in which the Omnipotent has ordained that the Root of Minerals should be fixed, and from whence the Trunk and Branches shoot into the Earth.

The Uterus is also called the *Ager Naturæ*.

Ager, or *Agrorum Terra*, is also the common Earth or Soil. All fat Earths are good Applications for any Parts which want drying. The Egyptian clayey Soil was used by hydropical and splenetic Patients. Many also daubed with it their Legs, Thighs, Elbows, Arms, Sides, Backs, and Breasts, and found great Benefit by it. It cured old Inflammations and lax Tumors, and such as through an immoderate Evacuation by the hæmorrhoidal Veins, were over-run with hydropical and watery Humours; and it also intirely removed inveterate Pains fixed upon any Part. Aetius, *Tetrabib. 1. Serm. 2. C. 3.* from Galen. See TERRA.

AGERASIA. Ἀγερασία. From a Negative, and γῆρας, Old Age. That State which maintains the Health and Vigour of Youth, in an advanced Age. What the Latins call *viridis Senectæ*.

AGERATUM.

Maudlin thus distinguished: *Ageratum*, *Eupatorium Mesues*, Offic. *Ageratum foliis serratis*, C. B. 221. Boerh. Ind. A. 125. *Ageratum plerisque*, *Herba julia quibusdam*, J. B. 3. 142. *Ageratum*, *Herba julia*, Chab. 367. *Ageratum vulgare*, five *Cassus hortorum minor*, Park. 78. Rati Hist. 1. 364. *Achillea lutea*, *Agerati folio longiore*, Act. Reg. Par. An. 1720. 322. *Balsamita fœmina*, Ger. 523. *Balsamita fœmina*, five *Ageratum*, Ger. Emac. 648. *Ptarmica lutea suaveolens*, Elem. Bot. 398. Tourn. Inst. 497. MAUDLIN. Dale.

Ageratum is a spriggy Plant, producing from one Root many Stalks, no higher than a Span, not branched, but very like Origanum, bearing an Umbella, with yellow Flowers, like Gold Drops, less than the Helichrysus. It is called *Ageratum*, because the Flower preserves its Beauty for a long Time. Dioscorides, L. 4. C. 59. His Description is transcribed by Oribasius, *Collect. L. 11.*

This Plant from a woody branched Root, abiding long in the Ground, sends forth many round Stalks, little or nothing branched about a Foot high, on which grow a great

Number of small, long, narrow, round-pointed Leaves, deeply serrated about the Edges; on the Tops of the Branches stand Umbels of numerous small Gold yellow naked Flowers, in scaly Cups or Calyces, containing very small Seed. The whole Plant has a strong and not unpleasant Scent; it grows with us only in Gardens, it being a Native of Italy and the warmer Countries, and flowers in July and August. Miller; Bot. Off.

Its Decoction is good in Fomentations. The Vapour of the Herb burnt provokes Urine, and mollifies the Hardness of the Uterus. Diosc. L. 4. C. 59.

It is a Digestive, and gently mitigates an Inflammation. Orib. Med. Coll. 1. L. 15. C. 1. Æginet. L. 7. C. 3. Aet. Tetr. 1. Serm. 1.

Maudlin is of a bitter Taste, warming and drying, and useful in Disorders of the Stomach and Liver. It is good in the Jaundice, and Obstructions of the Menses, provokes Urine, and kills Worms. Miller, Bot. Offic.

It contains the Virtues of Costmary and Tansey, and is an Ingredient in all capital Compositions. The Seed has been given, with Success, instead of Wormseed, to kill Worms. The distilled Water and Spirit yield a most fragrant Smell. This Plant is used in Syrup, Oil, Infusion, Decoction, Powder, and Pills. Mr. Boyle observes this Plant to be hurtful to the Eyes. Boerhaave.

Besides the common Maudlin taken Notice of by Dale, Miller enumerates the following Species:

Ageratum quæ ptarmica incana, pinnulis cristatis, F. Voy. The hoary Oriental Maudlin.

Ageratum Peruvianum, arboreum, folio lato, serrato, Boerh. The Peruvian Tree Maudlin, falsely called *The Jesuit's Bark Tree*, because at first supposed to be the Tree from whence the Jesuit's Bark was taken.

Ageratum serratum Alpinum glabrum, flore purpurascens, Tourn. Smooth *Ageratum* of the Alps, with a purplish Flower.

Ageratum Americanum erectum spicatum, flore purpureo, Houst. American *Ageratum*, with purple Flowers growing on a Spike.

Ageratum Americanum procumbens, gnaphalii facie, floribus ad foliorum nodos, Houst. Creeping American *Ageratum*, having the Face of Cudweed, and the Flowers coming out at the Setting on of the Foot-stalks.

Ageratum Americanum frutescens, Chamædryos folio, floribus ex foliorum alis, Houst. American *Ageratum*, with a Germanier Leaf, and the Flowers growing from the Setting on of the Leaves.

AGERATUS LAPIS. A Stone, used by Cobblers, to polish Womens Shoes. It is esteemed discutive, and astringent, and is useful in Inflammations of the Uvula. Galen, and from him Paulus Ægineta, Lib. 7. Cap. 3. and Oribasius, Lib. 14. Cap. 10.

AGES. ἄγῆς. The Palm, or Hollow of the Hand. Ilesybius.

AGE VITA. The Name of an Antidote, described by Myrepsus. The Place is much corrupted, but the Commentator conjectures, that Myrepsus wrote ἰσχυρὴ βίτα, *Yugis Vita*, long or continual Life, and that this Antidote took the Name from its great Virtues in procuring Longevity. This, Myrepsus informs us, is called *Melechabee* by the Saracens. It is a medicated Wine, of which the Author gives the following Account:

Take six Measures of good Red Wine, and put into it, after they are well beaten, and passed through a fine Sieve, the following Ingredients: Of Galangals, two Ounces; of long and white Pepper, each an Ounce; of Sage an Ounce and a half; of Ginger and good common Cinnamon, an Ounce and a half; of Saffron, three Drams; of Cloves, a Dram and a half. Boil them well in the Wine, till of the six Measures there remains but one Measure and a half, and then pour it into your Vessel. The Dose is half an Ounce in the Morning fasting in a Glass of Wine.

It is beneficial in all cold Distempers, for paralytic, stomatic, shaking, cachectic, and hydropical Patients. It helps Crudities, Inflation, and all Imbecillities and Coldness of the Stomach and Body. It cures Inflation in the Uterus, the Tensismus, the Maladies proceeding from Desfluxions, as the Gout in the Feet and the Joints, and all nervous Distempers, arising from Crudity and Humidity. Nich. Myrepsus, Sect. 1. Cap. 500.

This seems to be a very good Stomach Medicine, and must be of considerable Efficacy in the Disorders for which the Author recommends it. On this Account it is called *νίγηρ τῆς ζωῆς*, the *Nerve of Life*.

AGEUSTIA. From a Negative, and γίνομαι, to suffer. It signifies a Fasting, or Fast.

AGGLUTINATIO. Agglutination. It signifies the Joining together, or Re-union of any separated Parts of the Body, or Healing. Hence Applications, that promote that End, are called *Agglutinants*.

Agglutination is also used in a different Sense by *Actius*, as appears by the following Passage :

AGGLUTINATIO PILORUM. A Healing or Reducing the Hairs of the Eye-lids, that grow inwards, to their natural Order and Situation. This may be done by Mastich, applied with a Probe, which bends the Hairs back into their proper Order. Bitumen, the Slime of a Snail taken off with a Needle, the Juice of Hawk-weed, the Liquor of *Agglutinants*, or Ammoniac, work the same Effect. A compound Remedy may be thus prepared :

Take of dry Rosine, dry Pitch, Sulphur vivum, Bitumen Judaicum, each one Dram ; Wax half a Dram. Melt them together, and reserve them for Use till Occasion offers, when touch the Mass with a heated Probe, and agglutinate the Hairs as before directed. *Actius, Tetrabib. 2. Serm. 3. C. 681.*

AGGREGATUM. An Aggregate. A Body resulting from the Union of a great many others, which are smaller, of which the whole Sum or Collection is the *Aggregate*.

AGIAHALID. An Egyptian Plant thus distinguished by Ray : *Lycio Affinis Ægyptiaca*, C. B. *Agiaholid Ægyptiaca Lycio affinis*, Park. *Agiaholid Ægyptium folio Buxi, aut Lycium?* J. B.

It is a large Tree like the wild Pear, with but few Branches, and prickly, formed like the Lycium or Boxthorn. Its Leaves are like those of Box, but bigger and at a greater Distance one from the other. Its Flowers are but few, of a white Colour, resembling those of Hyacinth, but less. They are succeeded by little black Fruits, like those of dwarf Elder, of a styptic Taste, a little bitterish. This Tree grows in Æthiopia, and Egypt.

Its Leaves are sourish and astringent, and are esteemed good to kill Worms. *Lemery de Drogues.*

AGITATIO. Agitation, Shaking. In Medicine it is considered as an Exercise, and to this Dr. Sydenham attributes the great Benefit of Riding ; and, no doubt, it is very efficacious in removing Obstructions of the Viscera, when assisted by the fresh Air. See AIR.

AGLIA. See AGLIA and ÆGIDES.

AGLITHES. Ἀγλίθης. The Divisions or Segments of a Head of Garlick, which we usually call Cloves. It is used by Hippocrates, in his Treatise de Morbis Mulierum, Lib. 2. See ALLIUM.

AGME. Ἀγμή, or Ἀγμέ. From ἀγω, to break. A Fracture.

AGNACAT. Scaligeri Pyri Specie.

In a Country of America beyond the Terra de Labrador, towards the Illmus of Darien, there grows a Tree of the Figure and Size of the Pear-tree, always covered with Leaves, and of an extraordinary Greenness and Lustre. It bears a Fruit also like a Pear, but green, even when it is ripe. The Pulp is of the same Colour, sweet, fat, and tastes like Butter. It is a powerful, and next to miraculous, Promoter of venereal Vigour. *Ray's Hist. of Plants.*

AGNANTHUS. A Genus of Plants mentioned by Vailant. It bears the Flower at the Extremity of the Stalk and Branches after the Manner of Grapes. Every Flower, which resembles much that of the Agnus Castus, is a small Pipe, the anterior Edge of which commonly expands and divides itself into six unequal Parts, three superior which are disposed like Petal, and three inferior, of which that in the Middle is the largest of the six, and the two lateral the smallest. There arises from the Bottom of the Cup or Calyx, which is indented, an Ovary. This Ovary is articulated to the Bottom of the Pipe or Channel of the Flower, and when the Flower falls off it becomes, according to Plumier, a Berry containing a single Seed.

Agnanthus comes from the Greek Word ἀγνῶ, *chyste*, and ἀγνῶ, a Flower, because the Flower of this Plant resembles that of *Agnus Castus*, or *Pitex*.

There is but one Plant of this Genus known which is the *Agnanthus Viburni folis*, *Cornutia flore pyramidato, caruleo, foliis incanis*, Plum. Nov. Gen. 32. *Calychirichibou Caraihearum*, Surian. Hort. Sicc. *Memoires de l'Academie Royale des Sciences*, Annee 1722.

AGNATA. See ADNATA.

AGNINA MEMBRANA, or PELLICULA. *Actius, Tetrabib. 4. Serm. 4. C. 2.* calls one of the *Membranes* which involves the Fœtus by this Name, which he derives from its Tenderness. From him, probably, Bartholine and Drelineourt have borrowed the Expression. It is what Anatomists usually call the *Amnios*.

AGNINA LACTUCA, is *Lamb's Lettice*. See LACTUCA.

AGNOIA. Ἀγνοία. From α Negative, and γινώσκω, to know. When a Patient in a Fever, or any other Disorder, forgets, and does not know his familiar Acquaintance. This is called *Agnoia*, by Hippocrates, who pronounces it a very bad Symptom, especially when joined with a Rigor. *Prædict. L. 1. 64.* The Truth of this is evinced by every Day's Experience.

AGNUS. A Lamb. This Animal is too well known to want a Description. Many of its Parts are recommended for

particular medicinal Purposes. Thus Hippocrates in his Treatise, de Superfætatione, advises us to apply the warm Skins of Lambs (ἀγνιδας) to the Bellies of Virgins who are disordered for Want of Menstruation at a proper Age, no doubt, with a View of relaxing the Uterine Vessels, and removing thereby that Part of the Difficulty, which depends upon their too great Tension. Dr. Friend, in his *Emmenologia*, recommends emollient Fomentations for the same Purposes ; but the balsamic Warmth of a Lamb-skin, just taken from the Animal, seems more likely to relax, than any artificial Heat whatever.

The Lights are recommended in Disorders of the Lungs, and the Gall in Epilepsies, in the Quantity of two Drops to eight for a Dose. *Lemery.*

The Coagulum which is found at the Bottom of the Stomach is esteemed a good Antidote against Poisons. *Lemery.*

The Lungs, burnt and powdered, cure the Bruises from uneasy Shoes. *Actius, Tetrabib. 1. Serm. 2. C. 155.*

Lamb contains a great deal of volatile Salt and Oil.

The best and lightest Parts of a Lamb, according to Celsus, are the whole Head and Feet. *Celsus, L. 2. C. 18.*

It affords a glutinous Juice. *Oribas. Eup. L. 1. C. 21.*

It is of a moistening and loosening Nature, very nourishing, and lenifies sharp and pungent Humours.

It produces viscous, phlegmatic, and gross Humours, especially when it is too young.

It agrees in warm Weather, with young bilious People, but Persons of a hot and phlegmatic Constitution ought to refrain from it, or use it moderately. *Lemery on Foods.*

AGNUS SCYTHICUS. The Vegetable called the *Scythian Lamb*, in the Barbarian Language *Borametz*, *Borometz*, or *Boronetz*, is much noted among the Writers of Natural History.

The first who treated of it were Athanasius Kircher, in his *Ars Magnetica* (who cites Sigism. L. B. ab Herberstein, Hayton the Armenian, Surius, and Jul. Cæs. Scaliger) Lord Bacon, Fortunius Licetus, Andreas Libavius, Eusebius Nierenbergius, Adamus Olearius, and Olaus Wormius, to pass over the rest, among whom are many Botanists, who do little more than repeat what has been said before them.

This Plant is described by *Jul. Cæs. Scaliger*, under the Title of the *Scythian Lamb*, *Borametz*, as follows : " What has been related may pass for a Jest, if compared with the wonderful Tartarian Shrub. The chief Lord among the Tartars is the Zauolhan, distinguished as well for its Antiquity as Nobility. In that Country they plant a Seed very like that of a Melon, only less oblong ; from this Seed springs a Plant, which they call *Borametz*, that is, a *Lamb* ; for it grows in the Shape of a Lamb, almost three Feet high, resembling that Animal in Feet, Hoofs, Ears, and all the Head, except the Horns ; instead of which, it has a Tuft of Hair that looks like a Horn. It is covered with a very thin Hide, which is stript off by the Inhabitants, to make a Covering for their Head. They say the inner Pulp resembles the Flesh of a Sea Crevise, and that Blood flows from a Wound made in it ; that it is wonderfully sweet to the Taste ; that the Root raises itself out of Ground as high as the Waist ; a Circumstance that greatly heightens the Miracle. As long as it is surrounded by neighbouring Vegetables, it lives and enjoys itself like a Lamb, in a fat Pasture : When they die, or are extirpated, it pines away, and perishes. This Event does not happen only by Chance, or Length of Time, but has been brought to pass, by making the Experiment, and removing all Plants from its Neighbourhood. What increases the Wonder is, that it is greedily coveted by Wolves, and not by other carnivorous Beasts. But this last, I presume, is made only for the Sake of Allusion, to the Name *Lamb*, and to grace the Story : But I want to know, after what Manner four distinct Legs, with their Feet, are produced, and proceed from one Trunk.

" What is here related, I have had by Information, partly from Persons of the highest Rank, and partly from the most curious Inquirers into the Secrets of Nature".

Other Authors give us the same Account, or rather transcribe Scaliger ; however, some of them vary in certain Circumstances, and Kircher, in particular, to his Description, has added, or, to speak more properly, invented, a Figure : Nay, further, in some Museums of the Virtuosi, as those of Wormius and Swammerdam, the Skin, as it is pretended, of this remarkable Production of Nature, was formerly to be seen.

Antonius Deusingius, after nicely weighing the Matter in the Balance of Reason, suspected this Account of the *Lamb* as fabulous, and endeavours to persuade us, that Scaliger himself, who was one of the first that mentions it, treated it as a Fable ; and it was called in Question by others, who were not willing to be imposed upon.

To speak the Truth, if we examine the whole Story of this *Lamb*, with a Mind void of Prejudice, we shall find that it favours strongly of the Romance ; nay, in reality, is nothing else, and that Deusingius was in the right ; which will appear from the following Reasons :

1. No Person of Credit ever saw this Vegetable *Lamb*. What Olaus Wormius had by Relation from Monf. Eovaldi de Kleifs, Ambassador of the Elector of Brandenburg (who told him, that while he lived on the Borders of Tartary, he was offered by a Tartar, in Exchange for some Leaves of Tobacco, a dried Plant, bearing on its Stem a Fruit, which plainly resembled a *Lamb*, a Foot in Dimension, and covered with a curled Fleece) is not convincing, for that noble Person might easily be imposed upon by some cunning Tartar.

2. The very learned and experienced Naturalist, Engelbert Kämpfer, M. D. took a great deal of Pains in searching for this *Lamb* in its own Country, but could find nothing like it. "They have no Notion, says he, nor Memory, in Tartary, neither among the vulgar Sort, nor the Skilful in Botany, of the Existence of a Zoophyte that feeds on Grass, tho' I have searched all over the Country for it, till I have been ashamed and laughed at for my Pains; nor is there any Thing called *Borometz* besides Sheep, and what belongs to that Kind. Therefore I am well assured, that whatever has been related of that Plant is meer Fiction". *Amœnit. Exotica*.

3. The whole Story of this *Lamb*, is so like a Fable, as one Egg is like another. What gave Rise to it, has been very well discovered by that most diligent Searcher after Nature, in those Eastern Countries, Kämpfer, before mentioned, in the Place cited, where, (having premised somewhat concerning the Etymology of the Word *Borometz*, which, he says, is corrupted from the Muscovite *Borometz*, in Polish *Baranek*, which is a Diminutive of *Baran*, a Word of Slavonic Original, and used by the Russians and Poles, to signify a Sheep) he tells us that in some of the Countries about the Caspian Sea, there is a Species of Sheep very different from the common Sort, and highly valued for the Fineness of their Skins, which he describes, and the Manner how they are dressed, in order to serve as Ornaments, to set off the Garments worn by the Tartars and Persians: "Persons of Quality, says he, and the Rich, whose Pride and State require better Clothing than the common Sort of People, covet the Skins of Lambkins, which are much finer than when they are grown, and the younger they are, the more they are valued; for their Hairs may be twisted into finer and thicker Curls, which augments the Beauty and Price of the Skin. Hence a greedy Thirst after Gain has prevailed with some, in order to obtain Skins of the utmost Fineness, to exercise Cruelty, so far as to anticipate the Birth of the Lambkins, by ripping the Bellies of their Dams. A Skin, thus procured and skilfully dressed, is of so exquisite a Fineness, as to put it out of the Power of the Unacquainted to determine what it is, and when the Extremities are cut off retains scarce any Thing of the Figure of a Lamb, but just enough to deceive the Ignorant and Credulous with the Show of a woolly Membrane, in form of a Gourd." To this he subjoins, "The Price of a Skin, according to its Goodness, amounts to three Pieces of Gold, or more. It is used to line their Turbans, and often serves, by Way of Ornament, to border their Gowns and Cloaks." He concludes, at last, in these Words: "Whether this Fable owes its Rise to the Conjectures of some contemplative Philosopher, or the Ignorance of the first Relater, who, either through Carelessness, or Unskilfulness in the Language, might misunderstand a Thing he heard talked of by the by, or whether we refer it to some other Original, the Mistake being propagated to far distant Regions, and spreading every where, first occasioned this Pellicle the Loss of its true Name and History. Provision being thus made for its Reception, the Bauble itself was imported to us, under the specious Name of a *Miracle*, and lighting upon some illustrious Person of Curiosity, and an Admirer of this foreign downy Piece, it gained Credit and Admission, as all Prodigies are apt to do, by its Vegetable Face. This Error being illustrated by Authority, and soon after confirmed by Writing, took such firm Rooting in the Judgments of the Learned, as well as the Opinions of the Vulgar, that the Pellicle is shewn to this Day, among the rarest Curiosities in the Museums, as a Species of Zoophyte, when, indeed, it is no other than a Fœtus of the Cæsarean Section".

From what has been quoted, it appears, that those Persian *Lamb skins*, which our Skinners call *Persianische Baranken*, are of this Kind, that is, stript from Lambs that are cut out of the Bellies of their Dams, by the Cæsarean Section. But we have none of the choicest, the Price of which, as Kämpfer says, is three Pieces of Gold, or more, in their own Country, whereas we can buy the best that is imported, for one Piece, at most.

About three Years ago, a Russian, who was a Man of Learning and Curiosity, in his Travels, came to our City, and was pleased to desire a Sight of my Museum, which, among other Natural Curiosities, was not unprovided with this Scythian *Lamb*, which passed for the true *Borometz*, the Wonder of Wonders. It was about six Inches in Length, and furnished with a Head and Ears, and four Legs of the Colour of Iron, and covered with a Sort of Down, like the knappy Silks called by us *Gammet*, except its Ears and Legs, which

were bare, and of a darker Colour. When it came to be examined, I found it was not of an Animal Nature, nor the Fruit of any Plant, but the Root of some Vegetable, thick, spreading, and hairy; or rather the Stem, or Stalk of some Plant, which, in its Climbing, had, by the Ministry of Art, acquired some Sort of Resemblance of a Quadruped; or the four Legs were the Reliques of so many Stems, or, if you will, Pedicles, which had born Leaves, and were lopped off, as were also the Ears, tho' they were like Horns. Besides this, the Fibres shooting out here and there, by which the thick Root, and through that the Plant, like all others, received Nourishment, left no Room for Doubt. Moreover, one of the fore Legs was not, like the rest, continuous to the Body, but inserted therein by Art; and the Head itself, with the Neck, was very artificially connected to the same, as I found upon making a more accurate Inspection. So that this *Lamb* was fabricated and put together, from this and that Root or Stump, by the same artificial Means, as your Homuncios or Pigmies are composed and pieced up of the Roots of Mandrake and Briony. But there still remained a Doubt with me, out of what Plant this Ludibrium of Art and Nature could be formed, tho' a Thought soon came into my Head, that it must be one of those commonly called the Capillary Kind, for which I had several Evidences, both from the Comparison of some Exotic Plants which I myself knew, and of others which are described and delineated by Hans Sloane, M. D. and the Rev. M. Plumier, in their costly and elaborate Works; for some of these Plants shoot up in several Stalks, which are covered with a ferruginous Down, or, as they call it, reddish Moss. But what Kind precisely to fix upon for this Piece of Handicraft, I could not determine, tho' I am apt to think, it is a Species peculiar to Tartary, and not yet described, till Time shall inform me better.

I am farther confirmed in this Opinion, by what I have since read in the English *Philosoph. Transf.* where Sir Hans Sloane, describes, and gives us the Figure of one of these pretended Scythian *Lambs*, which he procured from the East Indies; but it is far more unlike the Figure of a *Lamb*, than mine before mentioned.

I suppose, that such Sorts of Lambs are shaped out of certain Roots or Stumps in Russia and Tartary, so as to make this Story of the Scythian Vegetable *Lamb*, in some Measure, a Truth. But every one sees, that such a *Lamb* is a quite different Thing, from what is described by the forementioned Authors, and not to be so much wondered at; for it is no difficult Piece of Work, out of Roots and Stumps of Plants, to construct and frame several Sorts of Prodigies, which shall have some Resemblance of Natural Things, as was observed before of the Roots of the Mandrake; and the grotesque Figure of these Roots, may, with as good Reason, be called an *Homuncio*, or *Little Man*, as the other, which is constructed, and set together, from the Roots and Stems of another Kind or Kinds of Plants, be taken for a *Lamb*. *J. II. Breynius, M. D. Danijæ. Phil. Transf.*

The Description of Sir Hans Sloane, above referred to, is as follows:

It was above a Foot long, as big as one's Wrist, having several Protuberances, and towards the End some Foot-stalks, about three or four Inches long, exactly like the Foot-stalks of Ferns, both without and within. Most Part of the Outside was covered with a Down, of a dark, yellowish, Snuff Colour, shining like Silk, some of it a Quarter of an Inch long. This Down is what is commonly used for Spitting of Blood, about six Grains of it going to a Dose, and three Doses pretended to cure such an Hemorrhage. In Jamaica are many rampant and Tree-ferns, which grow to the Bigness of Trees, and have such a Kind of Lanugo on them; and some of our Capillaries have something like it. It seemed to be shaped by Art, to imitate a Lamb, the Roots, or climbing Parts, being made to resemble the Body, and the extant Foot-stalks the Legs. This Down is taken Notice of by Dr. Merrer, at the latter End of Dr. Grew's *Mus. Soc. Reg.* by the Name of *Poco Sempie*, a golden Moss, and is there said to be a Cordial. Dr. Brown, who has made very good Observations in the East Indies, says he has been told there, by those who have lived in China, that this Down, or Hair, is used by them for the Stopping of Blood in fresh Wounds, as Cobwebs are with us; and that they have it in so great Esteem, that few Houses are without it. I have known it, says the Doctor, much used for Spitting of Blood; but on Trials I have seen of it, though I may believe it innocent, I am sure it is not infallible. *Philosoph. Transf.*

AGNUS CASTUS. *Agnus Castus, Vitex*, Offic. *Agnus Castus*, Hort. Monsp. 7. Chab. 63. Herm. Hort. Lugd. Bat. 11. Mill. Cat. 124. *Agnus foliis non serrato*, J. B. 1. 205. Ram. Hist. 2. 1696. *Vitex, Agnus Castus*, Rand. Ind. 94. *Vitex*, Rivin. Rupp. Flor. Jen. 201. *Vitex sive Agnus Castus*, Ger. 1201. Emac. 1387. *Vitex folio angusto*, Park. Theat. 1437. *Vitex foliis angustioribus, Cannabis modo dispositis*, C. B. Pin. 475. Tourn. Inst. 603. Elem. Bot. 475. Boeth. Ind. A. 2. 222. THE CHASTE TREE. Dale.

The *Vitex*, or *Lygus*, is a willowy Shrub, almost deserving the Name of a Tree, which grows on the Banks of Rivers, and in marshy Fields, and in rough and rugged Places, and Channels worn by Torrents. It bears long flexible Rods, hard to break; and its Leaves resemble those of the Olive, but are longer, and more tender. One Kind of it bears a white purplish Flower, the other a Purple. The Seed is like Pepper.

It is of a warming and astringent Nature. The Fruit drank heals the Bites of venomous Beasts, and relieves such as labour under Disorders of the Spleen, and the Dropsy. The Quantity of a Dram, taken in Wine, breeds Milk in Abundance, and provokes the Menfes; but it endangers a Miscarriage, and affects the Head, bringing on a Carus. A Decoction of the Herb and Seed makes a good Inseffion, for Women who are troubled with Inflammations, and other Disorders of the Uterus. The Seed drank with Penyroyal, or in a Suffumigation, moves the Belly; a Cataplasm made therewith cures the Pain of the Head, and it is used with Oil and Vinegar in Embrocations for Lethargies and Phrenesies. A Fumigation, or bare Substration of the Leaves, chafes away venomous Animals, and applied in a Cataplasm heals such as are bitten by them. With Butter and Vine-Leaves, they mollify the Hardness of the Testes. A Plaister of the Seed, with Water, heals the Fissures about the Anus, and used with the Leaves cures Wounds and Luxations. A Rod, or Branch, of the Tree, carried in the Hand, is supposed to prevent Galling in Journeys.

This Shrub is called *ἀγνός*, [*castus*, *chaste*] because the Matrons, who lived chaste during the Thesmophoria [Feasts of Ceres] used to lie upon them at Nights: And it is called *λύγος*, [*Lygus*, as it were, *Osier*] for the Toughness, or Tenacity, of its Rods. *Dioscorides*, Lib. 1. Cap. 135.

Hippocrates (*de Morbis Mulierum*, L. 1.) recommends the Seed of the *Vitex*, for bringing away the Secundines; and those of the white Sort for expelling the Fœtus.

This Tree arises not to any great Height or Thickness, having many ash-coloured Branches, flexible, tough, and not apt to break; on which grow many digitated Leaves, or such as are composed of five, and frequently seven, long, narrow, sharp-pointed Divisions, on one common Foot-stalk, pretty much resembling Hemp, but that they are not at all serrated about the Edges; they are of a deep Green above, and whitish underneath: On the Tops of the Branches grow Spikes of small whitish purple Flowers, consisting of a single Leaf, cut irregularly into five Parts, which makes them appear, as it were, galeated and labiated. They are set on Verticillatim, like the Flowers of Lavender, and are succeeded by small, round Seeds, like Pepper, but less, of a blackish, grey Colour, set in hoary Calyces, of a hot astringent Taste.

This Tree grows in the warmer Countries, as in Italy, in the Kingdom of Naples, and in Sicily, and flowers in August.

The Leaves, Flowers, and Seed of *Agnus Castus*, are accounted warming and drying, and useful against the Hardness of the Liver and Spleen, to expel Wind, and bring down the Catamenia. The Seed has been formerly mightily commended to allay venereal Heats, and Desires which arise from the Sharpness or Turgescence of the Seed, and by that Means preserve Chastity, but there is little Use made of it now, and the *Syrupus de agno casto* is left out of the new Dispensatory. *Mill. Bot. Off.*

The Leaves, Flowers, and Seed of this Shrub consist of very fine Parts. The Fruit is eaten, and sensibly heats the Body, and causes Head-ach. Fried in the Pan, it does not so much affect the Head, but heats and dries the Body, affording but little Nourishment, and that not in the least satulent, whence it restrains the Inclination to Venus. It is supposed to promote Chastity not only when taken in Meat and Drink, but even if it be but laid under the Bed-cloths. The Seed of it is more effectual than Rue for Hardness of the Liver or Spleen. *Actius Tetr. 1. Serm. 1. Agnus.*

It contains a great deal of Salt and Oil and but little Phlegm.

AGOGÉ. *ἄγωγή*. From *ἄγω*, to lead, or conduct. It signifies the intire Order or Tenour of a Thing, as the Manner of a Man's Life; the Procedure of a Distemper, or the State of the Air. *Castellus.*

Pliny, L. 33. C. 4. calls little Channels *Agogæ*, through which the Water runs from Gold-ore that has been washed with it, and in which the Gold is deposited.

AGOMPHIASIS, or GOMPHIASIS. *A Distemper of the Teeth.* It consists in their being loose in their Sockets. *Blancard.*

AGONE. The *Hyoscyamus*, *Henbane*. *Hesy chius.* See *HYOSCYAMUS*.

AGONIA. *ἄγνια*. From a Negative, and *ῥόος*, an Offspring. *Sterility.*

AGONIA. *ἄγνια*. From *ἄγος*, a Combat, or Struggle. Agony, when there is supposed to be a Sort of Struggle betwixt Life and Death.

AGONISTICON. *Ἀγωνιστικόν*, Paulus Ægineta (L. 2. C. 30.) makes Use of this Word as an Epithet to Water, which he explains by (*ὑπερτάτω*) *excessively cold*.

AGONOS. *ἄγνος*. From a Negative, and *ῥόος*, an Offspring, or *ῥών*. Barren.

Hippocrates, according to Foësius, calls those Women thus, who have never had Children, but are however in a Condition to breed. Or such to whose Fecundity there is at present some Impediment, which may be removed.

The Word is also applied to (*ἡμέραι*) *Days*, when it signifies equal Days, as the Fourth or Sixth, on which a Crisis is not to be expected, to distinguish them from (*ῥόμοι ἡμέραι*) *unequal*, or genuine Days (as the third or seventh) on which a Crisis, especially if it is compleat, generally happens.

AGORÆUS *Ἀγοραῖος*. From *ἄγορα*, a Market. An Epithet for Bread that is very coarse.

AGOSTUS. *Ἀγρός*. From *ἄγω*, to bring, or lead. That Part of the Arm from the Elbow to the Fingers. Also the Palm, or Hollow of the Hand. *Castellus. Constantine.*

AGRESTA. *Verjuice*. The Juice of unripe Grapes. Or, the sour Grape itself.

Lemery says, the *Agresta*, *Omphax*, or unripe Grape, contains a great deal of essential Salt and Phlegm, and a small Portion of Oil and Earth. He adds, that it is deterfive, astringent, and cooling; that it tempers the Acrimony of the Bile, and raises the Spirits.

AGRESTEN. *Acid Stone-tartar. Castellus.*

AGRESTIS. *Wild*. It is applied to Vegetables to distinguish those which grow spontaneously in the Fields, from such as are cultivated.

It is used also to express a malignant Disposition in some Distempers; and likewise a Brutality in the Manners and Dispositions of Men.

It is frequently used as an Epithet to Animals, to distinguish them from those which are domestic, and tame.

Wild Animals are more heating and drying, than those which are tame. *Aëtarius de Spirit. Animal. C. 315.*

Wild Animals afford better Nourishment than tame ones. *Oribasius, Synopsis. L. 4. C. 1.*

Domestic or tame Animals are of a more humid Temperature than wild ones, whose Flesh is firmer, and has little or no Fat, and will therefore keep much longer without Putrefactions than that of domestic Animals, who are bred up and fatted in Idleness. Hence it appears that wild Animals afford an Aliment much less excrementitious than the others. *Orib. Med. Col. Lib. 2. Cap. 41.*

Wild Animals in general, by Reason of the strong Exercise they use, have their Salts and Oils more highly exalted than those which are tame, and hence proceeds their high Taste. For this Reason also they are usually more healthful, and vigorous, and consequently afford better Nourishment to Stomachs able to digest them, for their Flesh is more firm and hard, for the same Reason that their Salts and Oils are exalted.

AGRIA, in the Sense of the Botanists, signifies the same as *Agri folium*, *Holly*, according to Blancard; but

AGRIA, is also a Sort of malignant Pustule, taken Notice of by Celsus, where he distinguishes two Kinds of Pustules, or Papulæ. The first, he says, is a very small Sort, which casts a Roughness and Redness over the Skin, but slightly corrodes it. It is somewhat smother about its Center, and spreads but slowly. This Malady assumes a round Figure at its first Appearance, and preserves its Roundness as it proceeds. The other, here taken Notice of, is called by the Greeks *ἄγρια*, which does not only cause an Exasperation like the other, but an Exulceration, with a vehement Corrosion and Redness of the Skin, sometimes making the Hairs fall off. The less this Sore approaches to a round Figure, the more difficult it is to cure; if it be not timely extirpated it turns to the Leprosy. But the slighter Sort of Pustules, if they are every Morning wetted with fasting Spittle, are healed without much Trouble. For the greater Kind there is no better Remedy than the Herb Pellitory of the Wall, bruised and immediately applied. As for compound Medicines, the Remedy of Mycon, which follows, is effectual:

Take of red Nitre, Frankincense, each P. 1. Cantharides cleansed P. 11. Of crude Sulphur a like Quantity. Of Refine of liquid Turpentine, P. xx. Meal of Darnel, three Pints. Of Fennel Flour, a Quarter of a Pint. Of crude Pitch, an Ounce. *Celsus, Lib. 5. Cap. 38.*

AGRIAMPELOS. From *ἄγρος*, *Wild*, and *ἄμπελος*, a Vine. The wild Vine. See *VITIS SYLVESTRIS*.

Gerard says, it is the black Bryony.

AGRICULTURA. *Agriculture*. This is no other Way concerned in Medicine, than as an Exercise. The Exhalations from a light gravelly Earth just turned up, are reckoned extremely healthful. For this Reason People have frequently been

been directed to follow the Plough, in order to respire Air impregnated with these salutiferous Effluvia.

AGRIELÆA. From *Ἀγρίος*, wild, and *ἔλαια*, an Olive. The wild Olive. See OLEASTER.

AGRIFOLIUM. *Agrifolium*, Offic. Ger. 1155. Emac. 1338. Raii Hist. 2. 1622. Synop. 3. 466. Merc. Bot. 1. 17. Phyt. Brit. 3. Mer. Pin. 3. *Agrifolium* sive *Aquifolium*, Park. Theat. 1486. *Aquifolium* sive *Agrifolium*, Chab. 605. *Aquifolium* sive *Agrifolium* vulg., J. B. 1. 114. Tourn. Inst. 600. Elem. Bot. 473. *Aquifolium Tournefortii*, Rupp. Flor. Jen. 35. *Aquifolium baccis rubris*, Herm. Hort. Lugd. Bat. 56. Boerh. Ind. A. 2. 219. *Ilex aculeata baccifera folio sinuato*, C. B. Pin. 425. Johnst. Dendr. 206. The HOLLY TREE. Dale.

AGRIFOLIUM, seu AQUIFOLIUM [of *ἄκρ*, a Prickle, and *folium*, Lat. a Leaf, because the Leaves are armed with sharp Prickles]. The HOLLY-TREE. Miller's Dict.

This Derivation is very unnatural and far fetched. It seems more to the Purpose to derive it from *Ἀγρίος*, rustick, rough, fierce, and *φύλλον*, a Leaf.

The CHARACTERS are,

The Leaves are set about the Edges with long, sharp, stiff Prickles; the Berries are small, round, and for the most Part of a red Colour, containing four triangular striated Seeds in each. Miller.

This Plant is too well known to want a Description.

The Berries of Holly are hot and dry, of thin Parts, and expel Wind. They are good against the Colic; ten or twelve being inwardly taken bring away by Stool thick phlegmatic Humours.

The Birdlime, which is made of the Bark, is no less hurtful than that of Mistletoe, for it is marvellous clammy, it glueth up all the Entrails, it shutteth and draweth together the Guts and Passages of the Excrements, and by this Means it bringeth Destruction to Man, not by any Quality, but by its gluing Substance. Holly, beaten to Powder and drank, is an experimented Medicine against all the Fluxes of the Belly, as the Dysentery, and the like. Gerard.

They make Birdlime after the following Manner:

In June or July they strip the Holly-trees, and boil the Bark in Spring-water, seven or eight Hours, till it becomes very tender. Then they take it out, and first letting the Water run off, till it is dry, they afterwards pile it up with Fern, intermixing for every Lay of Bark a Lay of Fern. There it is suffered to ferment and rot, for two or three Weeks, till it becomes a Mutilage. This they take and pound in a Mortar till it is capable of being moulded like a Lump of Dough, and afterwards work it well in their Hands in running Water, which in a short Time will cleanse it of all Sordes, and leave nothing but the pure and defecated Birdlime. Then put it in an earthen Pot, and let it stand three or four Days, till it has thoroughly purged and perfected itself by Despumation, and after that remove it into a fresh Vessel, and keep it for Use. Raii Hist.

N. B. Birdlime is not only made of the Bark of this Tree; but also of the Fruit, of Mistletoe, the Chestnut, and Sebesten.

The following Species of this Tree are enumerated by Miller:

1. *Aquifolium*; *Baccis rubris*, H. L. The common Holly with red Berries.
2. *Aquifolium*; *Baccis luteis*, H. L. Yellow-berried Holly.
3. *Aquifolium*; *Baccis albis*. White-berried Holly.
4. *Aquifolium*; *Foliis ex luteo variegatis*, H. R. Par. *Aquifolium aureum*, Munt. H. 163. Yellow-blotched Holly.
5. *Aquifolium*; *Foliis ex albo variegatis*, H. L. White-blotched Holly.
6. *Aquifolium*; *Echinatâ Foliis superâ Foliis ex luteo variegatis*. Yellow-blotched Hedge-hog Holly.
7. *Aquifolium*; *Echinatâ Foliis superâ Foliis ex luteo variegatis*. Yellow-blotched Hedge-hog Holly.
8. *Aquifolium*; *Echinatâ Foliis superâ Foliis ex luteo variegatis*. Gold-edged Hedge-hog Holly.
9. *Aquifolium*; *Echinatâ Foliis superâ Foliis ex luteo variegatis*. Silver-edged Hedge-hog Holly.
10. *Aquifolium*; *Foliis longioribus*, *Limbis & Spinis ex unico tantum Latere per totum argenteo pictis*, Pluk. Alm. 38. BROWDERICK'S Holly, vulgô.
11. *Aquifolium*; *Foliis subrotundis*, *Limbis & Spinis utrinque argenteis*. *Aquifolium elegans*, D. Doct. Eales. Pluk. Alm. 38. EALES'S Holly, vulgô.
12. *Aquifolium*; *Foliis oblongis lucidis*, *Spinis & Limbis argenteis*. Sir THOMAS FRANKLIN'S Holly, vulgô.
13. *Aquifolium*; *Foliis oblongis*, *Spinis & Limbis argenteis*. Hertfordshire White Holly.
14. *Aquifolium*; *Foliis subrotundis*, *Limbis argenteis*, *Spinulis & Marginalibus purpurascens*. BRIDGMAN'S Holly, vulgô.
15. *Aquifolium*; *Foliis oblongis*, *Spinis & Limbis flavescens*. LONGSTAFF'S best Holly, vulgô.
16. *Aquifolium*; *Foliis oblongis lucidis*, *Spinis & Limbis aureis*. BRADLEY'S best Holly, vulgô.
17. *Aquifolium*; *Foliis oblongis*, *Spinis & Limbis aureis*. WISE'S Holly, vulgô.

18. *Aquifolium*; *Foliis subrotundis*, *Spinis minoribus*, *Foliis ex luteo elegantissime variegatis*. The British Holly, vulgô.

19. *Aquifolium*; *Foliis oblongis atro-virentibus*, *Spinis & Limbis aureis*. BAGSHOT Holly, vulgô.

20. *Aquifolium*; *Foliis latissimis*, *Spinis & Limbis flavescens*. Glory of the East Holly, vulgô.

21. *Aquifolium*; *Foliis oblongis*, *Spinis majoribus*, *Foliis ex aureo variegatis*. Glory of the West Holly, vulgô.

22. *Aquifolium*; *Foliis subrotundis*, *Spinis & Limbis aureis*. ASLET'S Holly, vulgô.

23. *Aquifolium*; *Foliis longioribus*, *Spinis & Limbis argenteis*. The Union Holly, vulgô.

24. *Aquifolium*; *Foliis & Spinis majoribus*, *Limbis flavescens*. Fine PHYLLIS Holly, vulgô.

25. *Aquifolium*; *Foliis minoribus*, *Spinis & Limbis argenteis*. Painted Lady Holly, vulgô.

26. *Aquifolium*; *Foliis angustioribus*, *Spinis & Limbis flavescens*. FULLER'S Cream Holly, vulgô.

27. *Aquifolium*; *Foliis oblongis*, *ex luteo & aureo elegantissime variegato*. Milk-maid Holly, vulgô.

28. *Aquifolium*; *Foliis oblongis viridibus*; *maculis argenteis notatis*. CAPEL'S mottled Holly, vulgô.

29. *Aquifolium*; *Foliis oblongis*, *Spinis & Limbis luteis*. PARTRIDGE'S Holly, vulgô.

30. *Aquifolium*; *Foliis oblongis*, *Spinis & Limbis ocruleis*. MASON'S Copper-coloured Holly, vulgô.

31. *Aquifolium*; *Foliis parvis*, *interdum vix spinosis*. Box-leaved Holly, vulgô.

32. *Aquifolium*; *Foliis parvis*, *interdum vix spinosis*, *Limbis Foliarum argenteis*. WHITMILL'S Holly, vulgô.

33. *Aquifolium*; *Carolinianum*, *angustifolium*, *Spinis raris brevissimis*. Carolina Holly with smooth Leaves, vulgô.

AGRIMONIA. *Agrimony*.

Agrimony is a Plant of the spriggy Kind [*ἄγρυμνος*] shooting forth one slender, woody, strait, black, hoary Stalk, a Cubit high, or more, with Leaves at Distances cut mostly into five Divisions, and sometimes more, best resembling the Leaves of Hemp or Cinquefoil, of a dark Colour, and serrated round the Edges. The Seed grows about the Middle of the Stalk, being somewhat tough, and bending down, so as, when dry, to stick on your Clothes.

The Leaves, bruised and applied with old Hogs-lard, heal Ulcers that are hard to cicatrize. The Plant, or its Seed, drank in Wine, cures such as are afflicted with the Dysentery, a distempered Liver, or are bitten by Serpents. Some, by Mistake, have given this Plant the Name of Mugwort, which is quite another Thing. Dioscorides, Lib. 4. C. 41.

This Herb is called *Hociamsanum* by Marcellus Empiricus, Cap. 20.

Agrimony is thus distinguished by the Moderns:

Agrimonia, *Eupatorium Græcorum*, Offic. *Agrimonia*, Ger. 575. Emac. 712. Raii Hist. 1. 400. Synop. 3. 202. *Agrimonia vulgaris*, Park. Theat. 594. *Agrimonia Officinarum*, Tourn. Inst. 301. Boerh. Ind. A. 79. *Agrimonia seu Eupatorium*, J. B. 2. 398. Chab. 172. *Eupatorium Veterum sive Agrimonia*, C. B. Pin. 321. *Eupatorium Veterum sive Agrimonia inodora*, vel *minus odora*. Hist. Oxon. 2. 614. AGRIMONY. Dale.

This is the *Eupatorium* of Dioscorides, Galen, and the ancient Greeks; it grows about two Feet high, or higher, having several winged hairy Leaves, of a pale green Colour, composed of unequal Numbers of Parts, sometimes five, oftener seven, whereof the three at the End are largest; they are serrated about the Edges, like the Leaves of Strawberries, having several smaller Leaves intermixed among them, and are set alternately on the Stalk, on the Tops of which grow the Flowers in long Spikes a little bending down, they are small and yellow, made of six small Leaves, with two green Appendices growing by them, and are succeeded by little rough Burs, which stick to any Thing that comes in their Way; each Bur containing two Seeds. The Root is long and slender, and creeps in the Ground, shooting out fresh Leaves and Branches every Year; it grows in Hedges and Borders of Fields, and flowers in June and July.

Some Authors will have this Plant called *Eupatorium quasi hepatorium*, from its Usefulness to the Liver; others will have its Name derived from *Mithridates Eupator*, who, as Pliny says, first found out its Virtue.

Lemery adds, that it is good for Looseness, and often put amongst astringent Clysters, as also in Gargaisms and Apozems. Lemery de Drogues.

Agrimony is reckoned a Cleanser and Purifier of the Blood, a great Strengtheners of the Liver, and serviceable for all Diseases, arising from the Weakness thereof, as the Dropsy, Jaundice, and the like; it is commended likewise for the Strangury, and making bloody Water, and Riverius extols the Powder of the dry Leaves, for Incontinence of Urine. It is also reckoned among the vulnerary Plants, and put in Wound-drinks, and outwardly used in Baths and Fomentations. Miller, Bot. Off.

It is a most noble Hepatic, Vulnerary, and Splenic, as any we have, and therefore most frequently used in Distempers proceeding from a weak Liver, as the Dropsy, Cachexy, and Jaundice.

dice. It is prescribed also in Catarrhs, Coughs, and Retention of the Menfes; and very often used in Baths and Lotions. *Dale.*

It has a very fine fragrant Smell, and, infused in Wine till it has communicated its Fragrancy, is accounted a sovereign Remedy against Sadness and Melancholy. It is a principal Vulnerary, and, though a Corroborative and Astringent, is good in Inflammations. It is of peculiar Service in Diseases caused by the Laxness of the Fibres, in Fluxes incident to Camps, and Obstructions of the Viscera from Weakness of the Fibres. It is of excellent Virtue against the Fluxus Hepaticus, the Diarrhoea, Dysentery, Scurvy, Rottenness of the Gums, Inflammation of the Jaws, Consumption, Spitting of Blood, Dropsy, and Languor consequent on a Fever. Externally, the Leaves boiled in refined Wine and Bran, and applied, are useful in Luxations and the Falling down of the Womb. Hence it appears to be a prime Medicine in Cases that require Strengthening or Exhilarating.

It may be used as Tea, in which, if it be thought too astringent, Honey may be put. This Herb is said to be appropriated to the Liver, because, if infused in Water or Whey, and drank, it opens and scours the Intestines, and strengthens them afterwards, which must be of singular Benefit to the Liver. It is of excellent Use in cold Countries. *Boerhaave.*

The Species of this Plant, according to Miller, are :

1. *Agrimonia Officin.* Tourn. Common or medicinal Agrimony.
2. *Agrimonia odorata*, Cam. The Sweet-smelling Agrimony.
3. *Agrimonia minor, flore albo*, Hort. Cath. Lesser Agrimony with a white Flower.
4. *Agrimonia Orientalis humilis, radice crassissima repente, fructu in spicam brevem & densam congestis*, T. Cor. Dwarf Eastern Agrimony, with thick creeping Roots, and the Seeds growing in short thick Spikes.

The Leaves of *Agrimony*, in the Quantity of five Pounds, being chymically treated, yield four Pounds of an acid and almost austere Liquor, two Ounces of an urinous alkaline Liquor, two Ounces of thick Oil, six Drams of fixed Salt, and an Ounce of insipid Earth. From this Analysis it appears, that this Plant contains very little Salt of the ammoniacal Kind, since no concrete urinous Salt is got from it, but the acid Salt, wherewith it abounds, joined with Earth, forms a Concrete resembling Tartar, or Salt of Coral, combined with a large Proportion of Sulphur. Moreover, *Agrimony* has a saline Taste, a little astringent and acid, and its Juice turns the Tincture of Heliotropium to a faint Red; so that its astringent and aperitive Virtues seem both owing to the same austere Salt; for, though these Effects are contrary to one another, yet they often flow from one and the same Principle, the Strengthening of the weak and lax Fibres of the solid Parts. Experience shews, that *Agrimony* has the Virtues which are supposed to arise from its Composition; for it is astringent, detergent, resolvent, vulnerary, and aperient. *Geoffroy.*

AGRIMONOIDES.

Agrimonia similis, C. B. *Agrimonoides*, Park. Col. *Pimpliella folia Agrimoniae, nonnullis.*

It has a small, fibrous, woody, and reddish-coloured Root: The Leaves next the Ground are joined to hairy, reddish Pedicles, of nine Inches long, these are like Strawberry Leaves, but blacker, and more in Number, disposed after the Manner of Agrimony-leaves, with smaller ones interspersed (as is observed also in Agrimony) hairy, soft, serrated at the Edges with finer and more acute Indentings than Agrimony; and the Leaves themselves are rounder. It produces several supine, hairy, red Stalks, that send forth three or four Branches, which are furnished with smaller, fewer, and rounder Leaves, that have Auricles about the Stalk, like others of the same Kind, and at their Top bearing three or four hairy Buds, like those of the Pomegranate, very much jagged at the Edges, and containing the small yellow Flower of the Agrimony, which sometimes hardly opens, though the Fruit is duly formed within. After the Flowers are fallen off comes the Seed, which is of a round oblong Figure, of the Size of a Grain of Wheat, and formed with two Protuberances. When ripe, it falls off spontaneously, leaving the Husk gaping. It is of an absterfive, drying, and bitter Taste; and in Smell is a Mean between the fragrant and common Agrimony.

It flowers in April, comes to Perfection in May, and grows among Bryers and Shrubs in some mountainous Parts of Italy. *Raii Hist.*

It agrees with Agrimony in Virtues. *Boerb.*

AGRIOCARDAMUM. From *Ἀγριόκαρδον*, wild, and *Καρδάμον*, Nasturtium. The same as *Iberis*, Scitica Cress. See *IBERIS*.

AGRIOCASTANUM. The same as *Bulbocastanum*, Earth-Nut, or Pig-Nut, which see.

AGRIOCINARA. From *Ἀγριόκιννα*, wild, and *Κιννα*, Artichoke. The wild Artichoke. See *CINARA*.

AGRIOCOCCIMELEA. *Ἀγριοκκίμηλα*. From *Ἀγριόκ*, wild, *Κόκκον*, a Berry, and *Μέλη*, an Apple-tree. The same as *Prunus Sylvestris*. *Blancard.*

AGRIOMELA. *Ἀγριόμελα*, Crabs, the Fruit of the Malus

Sylvestris. The Malus Sylvestris, or Crab-tree, is thus distinguished by Authors :

Malus Sylvestris, Offic. Ger. 1276. Emac. 1460. *Jonf. Dendr.* 1. *Raii Synop.* 3. 452. *Park. Theat.* 1502. *Malus Sylvestris sine agrestis*, J. B. 1. 26. *Raii Hist.* 2. 1448. *Mala Sylvestria, quæ & alba, & rubra, & majora, & minora*, C. B. Pin. 433. *Malus Sylvestris acido Fructu*, Tourn. Inst. 634. The CRAB-TREE, or WILDING. *Dale, Pharmac.*

It is commonly lower than the cultivated, more crooked, scraggy, branched, and is supposed to be of a harder and firmer Substance. The disorderly and entangled Multiplicity of its Branches and Twigs; and the Luxuriancy and native Rigidness of the Shoots which it sends forth on all Sides, as well from the Stem as the Root, easily discover its wild and uncultivated Nature. The Leaves are generally lesser, and more shrivelled than those of the cultivated Tree; but their Flowers are alike, only the wild ones are, for the most Part, smaller, of a fragrant Smell, and sometimes inclining to a Red. But the principal Difference is in the Fruit, or Apples; for those of the Crab-tree are small, seldom as big as Walnuts, but near about the Size of Medlars, only rounder, and hanging by a somewhat long and slender Pedicle, with a green Rind, or Skin, which at last turns to Yellow, and in some to a beautiful Red. But they will bear no Comparison with the worst of those which grow on cultivated Trees, neither in Softness of Substance, nor Agreeableness of Taste, for they are endued with such a Sourness and Astringency, as renders them utterly unfit to be eaten.

There are as many Species of Wildings as of cultivated Apple-trees, and more than it is possible, or worth White to enumerate.

They are in Blossom at the same Time with those which are cultivated, or a little later, and their Fruit is also ripe after the others, that is, in October.

They are common in Woods and Hedges, not only in England but in foreign Countries.

The Fruit is vehemently austere, acid, and astringent, as well as the Juice expressed from it, which is very frequently used in England, France, and Germany, instead of Vinegar. Some call it *Agresta*. It will keep several Years. The French and Germans think it renders Fish, that are boiled in it, firmer, and more savoury; and this has been found true also amongst us, says Bauhine. The English call it *Verjuice*, that is, *green Juice*, borrowing the Name from the French. *Raii Hist. Plant.*

Wild Apples [such as grow on Crab-trees] are like your early ones, and have an astringent Quality. In Cases which require the Use of Astringents, you are to chuse those which are most unripe. *Dioscorides*, L. 1. C. 163.

Verjuice mixed with Yeast, and applied to the Place, is good for the Erysipelas, Itch, and all Sorts of Inflammations. Dropped into the Eyes, it is believed to cure their Redness, Inflammations, and Lippitude.

For the Scrophulæ [King's Evil] first wash and cleanse the Ulcers well with Verjuice, and afterwards apply thereto black Wool, moistened with Oil of Neat's-foot. *Raii Hist.* L. 2.

Its Fruit and Juice are the *Agresta* of the Shops, called *Verjuice*; it is vehemently austere, acid, and astringent. *Dale Pharmac.*

AGRION. *Blancard* says, this is a Name for *Peucedanum*; I do not know his Authority, having met with the Word in no other Author. See *PEUCEDANUM*.

AGRIOPHYLLON. This also, according to *Blancard*, is a Name for *Peucedanum*.

AGRIORIGANUM. From *Ἀγριόριγον*, wild, and *Ὀρίγανον*, *Origanum*. Wild *Origanum*, or wild *Marjoram*. See *ORIGANUM*.

AGRIOSELINUM. The same as *Hipposelinum*, which see. *Dioscorides*.

AGRIOSTARI. A Species of Wheat, called *Triticum Cresticum*. See *TRITICUM*.

AGRIPALMA. A Name of *Cardiaca*, Motherwort. See *CARDIACA*.

AGRIPPÆ. Those Children are thus called, who are born with the Feet foremost, because Agrippa, the Roman, was said to be born in this Manner.

Of all Births, where the Child presents any Part but the Head; the least dangerous, and most easy, is that, when the Feet come foremost, and even often, by the Hands of a skillful Man-midwife, it is accomplished sooner and with less Pain, than a Birth where the Head presents.

Since the Head is to open the Passage, it has no Way to do it, but by pressing strongly against the internal Orifice, and redoubling its Efforts at each Pain, which are reiterated for that Purpose. But after the Waters are pierced, if the Feet present at the Passage, the Operator, by gently drawing them, causes the Orifice to dilate, in order to give a Passage to the Legs, and after them to the Thighs, and so on to the whole Body. Thus the Parts which come out first, being less in Bulk than those which follow them, they open the Way one after another; so that in this Situation, the Birth is often sooner brought about, and a great deal of Pain saved to the Mother.

There

There are Signs by which we know that the Child is not rightly turned, and that some other Part presents, and not the Head: For Example; if the Pains are remis, and at long Intervals; if they begin in the Region of the Reins, and do not press strongly downwards, there is Reason to believe the Head does not present. But the Operator is certain of it, when he touches the Woman, and perceives that nothing pushes against the internal Orifice; or if he does perceive something, it is not hard and round like a Head. In this Case, he feels the Waters prepared, but in pressing his Finger against the Membrane, he does not meet with the same Resistance, as he would from the Head of the Child.

In this Juncture, the Man-midwife is to wait till the Waters break of themselves, and, by their Evacuation, make Way for the Infant to descend, and for the Part which presents, to sink down. If the Feet, or a Foot, present, he is not to think of returning the Infant, or endeavour to give it another Posture; but he is to receive and bring it away by the Feet, conducting himself by the following Directions.

When, I say, that he is to wait till the Waters break of themselves, I do not pretend to make it a general Rule: I mean, when the Pains are remis, and the Delivery seems at a Distance; but when the Pains are frequent and intense, and the Waters are distended, so as to fill up the internal Orifice, the Operator ought to break them with his Nails, in order to make Way, by their Evacuation, for the Infant to descend, and present itself at the Passage. If it be rightly turned, its Head comes upon the internal Orifice, and hinders the rest of the Waters from running off, by this Means facilitating a Passage for the Body of the Infant, after the Head has made Way. But if any other Part, besides the Head, place itself at the Passage, all the Waters run off by little and little, there being nothing to stop them; so that, when the Child is coming away, there is none left, which makes the Birth the more difficult.

It would not be impossible, if the interior Orifice were enough dilated, to introduce the Hand, as soon as the Waters were pierced, and before the Infant was fixed in the Passage, to return it, when it presented the Feet, and to make it take its natural Posture, which is to come with the Head foremost; as it would neither be impossible, when it presented the Head, to return it, and make it come by the Feet: But we are not to aim at changing either of these two Postures, which are the most natural; and whether it present the Head or the Feet, we are to receive it after both Manners, and not expose the Mother to Pains that can be of no Service, nor the Infant to the Violences which must be offered it, in order to make it change its Situation.

As soon as the Waters are pierced, and the first Flow is over, the Man-midwife, who must have no Rings on his Fingers, nor his Nails too long, having anointed his Hand with Oil or Butter, must introduce it into the Vagina. If he finds the internal Orifice not enough dilated to pass his Hand up to the Infant, he must try gently with two or three Fingers, to dilate it. If the Feet present, he must grasp them, and, drawing them without Violence, oblige the rest of the Parts to follow: And so is the Woman happily delivered, and in a very little Time.

If one Foot only presents, we are to bring it down into the Vagina, and examine whether it be the right or the left Foot, in order to guide the Hand along the Inside of the Leg which is held, the more easily to find out the other; which is no difficult Matter to a skilful Practitioner, who, when he has got hold of one Foot, soon finds the other. Having got hold of both, he must join them together, and, wrapping them in a warm Cloth, draw them gently out, with the rest of the Body, which is obliged to follow them.

Mauriceau advises us to take Care, that the two Feet we hold, do not belong to two different Children; but as it is impossible for such a Case to happen, that Caution is unnecessary. When there are two Children, they are inclosed each in its particular Membrane, which never break together, but one after another, so that four Feet cannot present at one Time. Of the two Children, one is at the Passage, the other at the Bottom of the Uterus, which hinders them from coming out together. Besides, if one had a Mind to join the right Foot of one Infant, with the left Foot of another, he would find it impossible, for the Distance that there is between them. So that he might have spared his Pains in making an Observation, which can never exist but in Idea, and not in reality.

Deventer, and Heister, however, in this Point, are of a different Opinion, and agree with Mauriceau, that two Feet, belonging to different Children, may possibly present together.

They who have the Precaution to tie the first Foot of the Child which comes out with a Ribbon, which they fasten to the Mother's Thigh, for fear it should retire, while they are employed in finding the second, and so put them to the Trouble of searching for it a second Time, doubtless believe that it is in the Power of the Child to draw back its Foot: But they are mistaken; for the Mother who presses downwards, with-

out ceasing, rather constrains the Infant to advance in its Way out, than suffers it to replace itself within. So here is another needless Precaution, that can never be of any Service.

In drawing gently the Foot that is come out, the other often presents itself; but if it delays ever so little, it must be searched for, which is done by sliding the Hand along the Thigh of the Infant up to its Buttock, where you are sure to find it. The two Feet being brought out, and joined together, are to be wrapped in a dry linnen Cloth, to prevent the Moisture with which they are covered, from making them slip out of the Hands of the Operator, in the Time of the Operation.

The Child being thus extracted beyond the Hips, the Operator stops a while, in order to disengage the Arms, one after the other, and to lay them at Length by the Body. When this is done, he renews his Efforts, and pulls with more Force, because of the Shoulders, which, being the most bulky Part of the Body, are brought away with most Difficulty. When the Shoulders are passed, the Head follows easily, except it be of an extraordinary Bigness; and in order to prevent its being stopped, the Operator must call upon the Mother to redouble her Efforts, that while he is drawing on one Hand, and the Mother bearing down on the other, the Head may the more easily be extricated, and follow the rest of the Body.

Mauriceau would not have one Arm of the Child left for a Conductor and Stay to the Neck of the Infant, without bringing it down, though it is the Practice of many other Men-midwives, who say it succeeds very well. He says, that the Arm which is left, causing the Head to bend to one Side, hinders it from coming in a strait Line, and so may cause it to stick at the Os Pubis. But, in Answer to this, they say, there needs no more than to leave both Arms, for then the Head will be right, and its Bulk not the more augmented, because they are placed at the Sides of the Head, on the Temples, where it is flat. But whether the Arms are laid along by the Sides, or left in their Situation by the Sides of the Head, it makes no material Difference, and can do no Manner of Prejudice.

When the Feet of the Child come foremost, it is a Sign that it did not turn in the Beginning of the ninth Month, like all other Children, but that it presents in the same Posture it always kept in the Womb. If it lies on its Back, with its Face upwards, which is easily known by the Feet, which are brought out, the Operator must take a great deal of Care not to extract it in this Situation, because, the Face lying upwards, the Chin would be sure to catch upon the Os Pubis, which would extremely perplex the Operation. He must, therefore, in extracting the Child, gradually turn it, as it comes, on its Face, with its Back upwards, which is the most convenient Situation for the Birth, and where it runs least Hazard of being stopped by the Bones which surround the Passage.

The Child thus turned with its Face downwards, is brought away without much Difficulty, provided the Bulk of the Head be proportioned to that of the Body. But when the Head is of an extraordinary Size, it has the Misfortune to be stopped by the Bones of the Pelvis, which being incapable of giving Way, will not suffer it to pass. When this happens, you must not be too violent in pulling the Body of the Child, for fear of separating it from the Head, as it too often happens. In this Case the Operator is to give the Feet to be held by an Assistant, with a Charge not to draw before he orders it. Then, the Back of his left Hand being turned towards the Coccyx, he slips one or two Fingers into the Mouth of the Child, to press down its Chin; and with his right Hand grasping the Neck near the Occiput, he draws gently, with the Assistance of the Person who holds the Feet, and has Directions to draw in Conjunction with him. And thus the Child is born, without running the Risque of losing its Head.

If we ought to take Care of drawing the Child away with too much Violence, we are, at the same Time, to avoid leaving it too long in that Situation, because it would infallibly die if it remained there above half a Quarter of an Hour. It wants Respiration, in order to maintain the Circulation of the Blood, and Respiration cannot be performed, while the Head is thus encumbered. Nor can the Circulation between the Mother and Child be carried on, because the Cord, by Means of which it is preserved, is pressed between the Head of the Child, and the Bones that surround it. Since then, neither of these can be performed, it must unavoidably perish. Such a Misfortune happened in 1695, to a Male Infant of the Duke of Savoy, who had continued too long in that Situation, by the Fault of the Mid-wife. Upon this Account, two Years afterwards, when the Duchess of Savoy, now Queen of Sicily, was with Child, the Duke, her Husband, now King, sent his chief Surgeon to Paris, to learn the Art of Midwifery, who afterwards returned to Turin, and delivered the Queen of all the Children she has had, who did very well. *Dionis des Accouch.*

Deventer, a very good Judge of these Affairs, agrees pretty much with Dionis as to the Manner of treating these Cases. He is very particular in directing, that one Foot should not be suffered to sink too far into the Passage, but that as soon as ever the Waters break, if one Foot presents it should be kept back;

mean

mean Time the Operator must slide his Hand along the Inside of the Leg which presents, to which he is directed by the great Toe, and by this means he is infallibly directed to the other Leg, if he does not meet with it in the Way; this he is to join with the other, and bring both together out of the Passage.

But if it happens, that the Leg is already sunk too deep into the Passage, he advises to place the Woman with her Head considerably lower than her Hips, that the Uterus together with the Child may recede a little, and then to return the protruded Leg, or at least the Knee, that there may be more Room to search for the other Leg, and bring both away together in the Manner directed above.

This Author is utterly against bringing down either one or both Arms, but recommends it strongly to bring the Child away without that Trouble to the Mother, or Operator, and Danger to the Child, who must necessarily remain longer confined in the Passage. And gives repeated Assurances that leaving the Arms to come away lying on each Side the Head, can be of no ill Consequence.

At the Time the Head is extracting, all Authors agree with Deventer in advising the Mother to bear down forcibly, whether she has Pains, or not.

The grand Point wherein Authors upon this Subject disagree, is with Respect to bringing down the Arms, when the Child is advanced as far as the Shoulders. La Motte, Giffard, and Chapman advise it. Dionis, as we have seen, leaves the Thing indifferent, and Deventer is utterly against it. Hence we must conclude, that all these Authors have succeeded very well in their different Ways of delivering Women under these Circumstances. And if so, that Method which gives a Woman the least Pain, the Operator least Trouble, and the least endangers the Child, is to be preferred; and therefore Deventer's Method of leaving the Arms of the Child to come away with the Head, must be the best.

There is not much Difficulty in Births of this Sort, till the Child is extracted as far as the Head, but it is sometimes subject to stick a little there, some Management is therefore necessary to bring the Head away expeditiously, otherwise, as Dionis observes, the Circulation by the Intervention of the Umbilical Vessels being hindered, the Child must perish. The following Observations will set all Circumstances relating to Labours of this Sort, in an intelligible Light, and either confirm, or illustrate the Doctrine laid down by Dionis as above.

When the Head sticks, and does not come away readily, one, or two Fingers are to be introduced into the Child's Mouth, whilst with the other Hand the Operator lays hold of the back Part of the Neck, then by acting with each Hand alternately, and sometimes with both together, the Head is generally readily extricated. *La Motte.*

As soon as the Child is advanced as far as the Buttocks, if the Toes are turned towards the Mother's Belly, the Body as it is extracted must be turned by Degrees in such a Manner, that the Toes may be towards the Anus, and consequently the Heels towards the Belly of the Mother, otherwise the Chin will catch upon the Os Pubis, and endanger the Child and the Mother too. In this Case a greater Force is requisite to bring away the Child, and Pulling too hard may separate the Head from the Body, and cause a great deal of Trouble in bringing away the Head afterwards. *La Motte.*

When this Precaution has been neglected, and the Child is advanced as far as the Chin, where it sticks, being intercepted by the Os Pubis, the Method is to introduce the Fingers of one Hand betwixt the back Part of the Head, and Os Coccygis, and with these to thrust back a little the hinder Part of the Head, mean Time, one or two Fingers of the other Hand are to be introduced betwixt the Os Pubis and Chin, till they can be got into the Mouth of the Child; then turning the Head a little on one Side, and acting sometimes with one Hand and sometimes with the other, and sometimes with both together, as Occasion requires, the Head is to be freed from its Confinement, without endangering its Separation from the Body, which by pulling hard without these Cautions would probably be effected. *La Motte.*

The Reasonableness of this Method will appear very plain to whoever considers the Figure, and present Situation of the Head. When the Chin is thus fixed on the Os Pubis, the back Part of the Head is thrown towards the Os Sacrum, and this the more, the greater Force is used in drawing the Child in order to bring it away, inasmuch that it lies in some Measure a-cross the Passage, with the Chin at the Os Pubis, and the Crown of the Head pointing towards the Os Sacrum; in this Situation then it is next to impossible for it to come away, unless the Passage is very large. But when the back Part of the Head is thrust from the Os Sacrum towards the Bottom of the Uterus, the Chin approaches nearer the Neck, and consequently is more likely to be brought off the Os Pubis, which obstructs it. On the Contrary, when the Chin is made to approach the Neck, the Crown of the Head is made to recede from the Os Sacrum. So that each Hand in this Way of acting, recommended by La Motte, assists the other in the best Manner that can be conceived,

and gives them a Command of the Head to turn it a little on one Side, that the Child may be extricated from this dangerous Situation.

If both Feet cannot be found without Difficulty, the Child may be extracted by one; however, in this Case, Care must be taken, not to draw one Foot with the same Violence as both would bear, for Fear of stretching the Ligaments, and laming the Child for ever. *La Motte.*

La Motte observes in another Place, that before we attempt to bring away a Child by one Leg only, we should be very sure that the Child can come in that Posture, I suppose he means, that the Passage is large enough, in Proportion to the Size of the Child; for, he says, when the Child is engaged in the Passage to a certain Point, it is not in the Midwife's Power to bring it any other Way, that is, to get the other Foot.

The late Writers on the Subject of Midwifery of our own Country, I mean Chapman, and Giffard, are of Opinion that both Feet should be brought out, provided it can be done conveniently; but if they can get one Foot, they are in no farther Pain about the other than to assure themselves that it is bent forwards, towards the Belly; and then wrapping a soft warm Cloth about the Leg, they readily bring the Child away by that only; especially when the Passage is tolerably large, the Woman has had a Child before; and the Infant is of a moderate Size.

This Sort of Birth is of Importance enough to deserve a particular Attention, because all Births whatever, where the Child presents any Part but the Head, must be reduced to this, for the Method of turning a Child, which presents in a wrong Posture, in such a Manner as to bring the Head to the Orifice, as it ought to be naturally, is now exploded by the best Authors, and Practitioners, as more inconvenient and dangerous to the Mother and Child, as well as troublesome to the Operator. Deventer is even of Opinion, that in Cases where the Head presents, but the Birth is retarded by a bad Position of the Womb, it would be the best Way to bring the Child away directly by the Feet, without waiting to reduce the Womb to its natural Situation, which is not done without much Difficulty and Pain. Heister, in this Case, agrees with Deventer, provided the Womb, and with it the Head of the Child, cannot immediately be reduced to the natural Position. By a bad Position of the Womb, I mean, when it inclines too much, either forwards, or backwards, or to either Side, for then the Orifice, instead of answering directly to the Passage, is thrown either upon the Os Sacrum, Os Pubis, or the Bones which form the Sides of the Pelvis, which obstruct the Birth, and render the Pains, let them be never so strong, of no Effect.

I must not omit taking Notice, that Heister recommends another Method of extricating the Head, when the Face is turned towards the Os Sacrum. This Author is apprehensive, that the Tenderness of the lower Jaw would render it liable to be broke or dislocated, when the Fingers of the Operator are placed in the Mouth. He therefore advises to introduce the Hand far enough to place two Fingers one on each Side of the Child's Nose, and then with this Hand to press gently towards the Intestinum Rectum, in order to make more Room for the Egress of the Child.

He also advises, when the Face of the Child is turned towards the Mother's Belly, to place the Fingers on each Side of the Nose, instead of introducing them into the Mouth. Whilst the Operator is in this Manner endeavouring to bring the Head away, an Assistant should draw the Child gently, that by these united Efforts the Birth may be expedited.

When the Body of the Child is turned in such a Manner, during the Extraction, that the Toes point downwards, by which it should appear that the Face is turned towards the Os Sacrum of the Mother, it is possible, however, that the Neck may be twisted in such a Manner, that the Face may point towards the Mother's Belly, and then the Chin will catch on the Os Pubis. This Case is not to be discovered otherwise than by Feeling, and when the Operator is certain of it, he must conduct himself by the Directions given above.

It is a general Rule, that the Force with which a Child is drawn when it comes with the Feet foremost, should not be directed in a right Line from the Passage, but inclining somewhat downwards towards the Os Coccygis.

A few Cases will be sufficient to illustrate these Rules.

CASE I. from LA MOTTE.

In September, 1693, I was called to the Wife of a Carpenter: I found the Midwife pulling with all her Force the Child, who had presented the Feet, and was extracted as far as the Neck, but the Chin appeared to be fixed upon the Os Pubis. I immediately introduced one Hand betwixt the Os Pubis and Face of the Child, who had been dead a considerable Time, and got a Finger into the Mouth, and with the other Hand, which I introduced betwixt the Rectum and back Part of the Head, I pushed the Head a little backwards. By Means of my two Hands placed in this Manner, I had Command enough of the Head to turn it a little on one Side; and this gave me Room to introduce my Fingers somewhat farther,

so that I had an Opportunity of acting with my Hands alternately, and sometimes with both together, till at last I brought the Chin into the Passage, which gave me the Advantage of taking better Hold, for I durst pull at the Neck but very gently, it being almost separated from the Head when I arrived. Having put Things in this Situation, I waited for a Pain, and the next being fortunately a very strong one, by the Help of this joined with the small Assistance I was able to give with my Hands, I accomplished the Delivery, and brought the Child away, whose Head would have infallibly have been separated from the Body, and left in the Womb, without this Care and Caution.

CASE II. from LA MOTTE.

March 6, 1717. The Curate of Cherbourg sent to desire my Assistance for a poor Woman, who had been in Labour three Days, and whose Child was certainly alive. He informed me that two Midwives had been with her all the Time, without being able to deliver her. I made all the Haste I could to her, and, upon Examination, found the two Feet presenting at the Passage, with the Toes turned towards the Mother's Belly, and consequently the Heels towards the Anus. I laid Hold on them, and, joining them together, made an Effort to draw them out, but could not succeed. As the Force I employed, on this Occasion, was at least sufficient to move them, if not to bring them away, I did not doubt but there was something extraordinary in the Case, which caused this Resistance. In order to examine farther, I introduced my other Hand into the Vagina, and passing it up, I found the Buttocks sunk so low, that they intirely filled the Passage, and kept the Knees bent upward, in such a Manner, that it was impossible to move the Legs, till I had pushed back the Buttocks, and then I brought the Child away with a great deal of Ease.

CASE III. from GIFFARD.

January the 25th, 1725, I was called upon early in the Morning, to go to Westminster, to visit a Woman in Labour; Upon Examination, I found the Child was come forth, with the Feet foremost, as far as the Buttocks, in which Posture it had stuck for about two Hours, before I got there, the Midwife being foiled in all her Attempts to extricate it out of this Difficulty. I therefore thought it highly advisable to endeavour the Delivery as soon as possible, because the Child was already dead, by sticking so long in this Manner, and the Mother underwent very great Pain and Uneasiness. I hereupon wrapped a dry Cloth about the Thighs and Buttocks, and, by gently pulling, endeavoured to bring it forwards; but it moved with great Difficulty, and very slowly. I was at length, after much Trouble, able to bring down the Arms, and then placing one of my Hands under the Breast, with the other I pulled at the Shoulders; but that not availing, I got one Finger into the Child's Mouth, and pulled by the under Jaw, at the same Time clapping two Fingers against the Child's Cheeks; unluckily the Jaw gave Way and split, by which unhappy Accident, in a great Measure, I lost my Hold; yet, after great Fatigue and Labour, I brought the Child, but not without great Apprehensions and Fear of the Head's being separated from the Body.

CASE IV. from GIFFARD.

April the 6th, 1726, I was desired to go to a Woman, the Wife of a Cabinet-maker, where, when I came, the Midwife told me, that the whole Body was in the World, and that it stuck at the Head. I thereupon (well knowing the Danger the Child must be in, being so confined, and that it would, if it was not already, be very soon choaked) immediately endeavoured to extricate the Head, which I soon accomplished after this Manner: I clapped one Hand flat upon the Breast, and with the other taking Hold above the Shoulders, drew towards me, but the Head did not readily follow. I therefore passed my Fingers up to the Child's Mouth, supporting the Breast with my Wrist and Arm, and putting one Finger into the Mouth, and two others upon the Cheeks, I pulled towards me, and at the same Time drawing with my other Hand above the Shoulders, brought out the Head. The Child was born alive, but died soon after.

CASE V. from GIFFARD.

June the 3d, 1726, I was, about eleven a Clock at Night, fetched by a neighbouring Apothecary to his Wife, who had been in Labour ever since one a Clock that Morning. Upon Examination, I found the Membranes much extended by the Waters, and her Pain strong, but not bearing forwards; she continued in this Condition till about five a Clock the next Morning, when upon a strong Pain the Membranes gave Way, and the Waters gushed out. I should have observed, that I could not feel any Part of the Child, until the Membranes were broke, which made me

judge it would present in a wrong Posture, as it accordingly did; for, upon the passing off of the Waters, the Feet came foremost, with the Toes towards the right Hip of the Mother; when it was advanced as far as the Hips, by gently turning it I brought the Face towards the Mother's Fundament; afterwards I drew it almost to the Shoulders, wrapping warm, dry, and soft Linnen Cloths about the Hips and Body. It was with some Difficulty I brought down the Arms, but that being done, I placed one Hand flat upon the Breast, to support it, and with the other took Hold above the Shoulders and pulled towards me; but the Head sticking, I was forced to pass the Ends of two Fingers into the Mouth, and so brought out the Head. Immediately I made a Ligature upon the String and divided it, and wrapping the End about my Fingers passed my Hand up towards the Placenta, and finding it stuck to the Bottom of the Womb, I separated it with the Ends of my Fingers, and brought it away. The Child at its first Appearance seemed to be dead, but in a little Time began to move, and gradually to recover; it proved a large and lusty Girl.

CASE VI. from CHAPMAN.

I was sent for to a Woman, where the Child presented with the Feet; the Midwife had gotten all but the Head, which stuck fast, and had so done for four Hours. I immediately introduced my Hand, so as to pass two Fingers into the Infant's Mouth, by which, pulling gently at the Neck with the other Hand, and moving the Head tenderly to and fro, I delivered her with Ease and Safety.

CASE VII. from CHAPMAN.

I was sent for to a Woman, where the Membranes of two Children were broke; for, in passing my Hand, the Infants were in such a Position, that I found a Number of Hands and Feet. The Waters had been so long lost, and the Contraction of the Parts so great, that I had some Difficulty, not in distinguishing a Foot from a Hand, but in pairing the Legs; which, when by passing my Hand up to the Groin, I had done, I brought the first Child away by the Feet, and afterwards the Second, but with greater Ease, in the same Manner, then I gently separated a large double Placenta (which adhered a little more than usual) and so drew it away by the two Navel-strings.

AGRONOMOS, Ἀγρόνομος. From ἄγρος, a Field, and νόμος, to feed. It is an Epithet for wild Animals, that seek their Subsistence in the Fields.

AGROPHON, Ἀγροφών. Galen, in his *Exegesis*, explains this by ὄρειος, mountainous.

AGROSTIS, Ἀγρόστις. This is the *Agrostis* of Dioscorides. *Gramen*, Officin. *Gramen caninum*, Ger. 22. Emac. 23. Mer. Pin. 50. *Gramen caninum vulgatum*, Park. Theat. 1173. Hill. Oxon. 3. 178. *Gramen caninum vulgare*, Merc. Bot. 1. 38. Phyt. Brit. 51. *Gramen caninum arvense*, seu *Gramen Dioscoridis*, C. B. Pin. 1. Theat. 7. Elem. Bot. 417. *Gramen caninum spica triticea aliquatenus simile*, Raii Meth. Gram. 171. Boerh. Ind. A. 2. 155. *Gramen spica triticea repens vulgare caninum dictum*, Raii Synop. 3. 390. *Gramen repens Officinarium*, Chab. 181. *Gramen repens Officinarium forte, spica triticea aliquatenus simile*, J. B. 2. 457. Raii Hill. 2. 1255. *Gramen Loliaceum radice repente sive Gramen Officinarium*, Tourn. Inst. 516. Rupp. Flor. Jen. 245. Buxb. 145. QUICK-GRASS, or COUCH-GRASS. *Dale*.

The *Agrostis* produces jointed Tendrils, which creep on the Ground, and take Root from their Joints. The Roots taste sweet, and are also jointed. The Leaves are pointed, hard, broad, like those of the small Arundo, or Reed, and serve to feed Cattle. *Dioscorides*, L. 4. C. 30.

It is a tall Grass, sometimes above three Cubits high. The Leaves, which are for the most Part rough, proceed from a long Vagina, or Sheath, four or five on a Stalk, that is, one from each Joint. The Stalk bears an Ear on its Top, in the same Situation as that of Wheat, but thinner, and more inconsiderable on all Accounts, reddish, with a very short Beard. The Seed is of an oblong Figure, and of a dark Colour. The Roots, with Respect to Grass, are somewhat big, and creep far and wide, hard, sharp, and pungent at their Extremities, and of a sweet Taste.

They are very unwelcome and troublesome by their Creeping and Luxuriancy in Fields and Gardens, and hard to be extirpated.

I observed another Species, or Variety of this Grass, with a much longer Beard, about Settle, a little Town in Yorkshire, and several other Places in the North of England. *Raii Synop.* 2. 1255.

The Root bruised, and applied, glutinates Wounds. The Decoction of it, drank, is effectual against the Gripes, Difficulty of Urine, and Ulcers of the Bladder, and breaks the Stone. *Dioscorides*, L. 4. C. 30.

The Root of the *Agrostis* is cold and dry, but the Herb refrigerates, though weakly, and is in the middle State between

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Humidity

Humidity and Dryness. The Root has a biting Quality, and some little Fineness of Parts, and has been sometimes found effectual in breaking the Stone. The Seed of the common Sort is weak, but what grows in Parnassus is of fine Parts, of a drying Quality, and a sourish Taste. *Oribas. Med. Col. L. 15. C. 1. Act. Tetr. 1. Serm. 1. Tit. A.*

Green Grass, not only what is so called by Way of Preheminence in the Shops, but all Sorts of it, dissolves Stones, especially bilious ones. Oxen and Sheep that are troubled with the Stone in the Winter, are freed in the Spring by eating the green Grass, as is observed by Fran. de la Boe Sylvius, and also by Dr. Glisson in his *Anatomy of the Liver. Raii Synop. 2. 1255.*

It refrigerates, dries, opens, and is somewhat astringent, and is of fine and penetrating Parts. *Schrad. Dale Pharmac.*

Its Roots are of great Use in almost all Ptifans. Its distilled Water is said to kill Worms. The Roots are moderately appetitive, and lenifying, and open the Bowels without any ill Consequence.

By the chymical Analysis, a great deal of Oil, Earth, and several acid Liquors, also a little fixed, but no volatile Salt is obtained from them; so that probably they act only by a Salt analogous to that of Corail, involved in a good Quantity of Sulphur. *Tournefort's History of Plants, by Martyn.*

Monf. Scheuchzer, in his *Agrostographia Helvetica Prodrumus*, says, that among all the Plants that grow on the Alps, he betook himself particularly to study the different Species of the *Gramen*, or *Dogs-Grass*; because he was persuaded, that this Herb, the most common, and, in Appearance, the most worthless of all, is, at the same Time, the least known among the Botanists, and the most difficult to be distinguished under its several Species. Sixteen of these he has described, and caused to be engraved. *Hist. de l'Acad. Roy. des Scienc. An. 1708.*

This is the famous *Chien dent* of the French, a constant Ingredient in all the Ptifans, as they improperly call them. See *PRISANA.*

The Lithontripic Virtue of this Plant has been taken Notice of by Boerhaave, and confirmed by Abundance of Experiments.

A Decoction of the Root is excellent for Children who are troubled with Worms.

AGRUMINA. Onions. Leeks. *Castellus.*

AGRYPNIA. From a Negative, and *ἄγρυπνος*, Sleep. Want of Sleep. See *VIGILIE.*

AGUAPE. The *Nymphaea Alba* Ger. J. B. *Nymphaea Alba major*, C. B. White Water-lilly is called so by the Inhabitants of Brasil. *Raii Hist. Plant.*

AGUARA QUIYA. The *Solanum vulgare*. Common Night-shade is so called in Brasil, in the Opinion of Ray.

AGUARA PONDA. *Brasilianis Marggravii, Rutensteert Belgis, i. e. Myosuros. Viola spicata Brasiliana.*

It grows to the Height of a Foot and half, or higher, with a smooth, round, green, and jointed Stalk. At each Node, or Joint, come forth four, five, or more, narrow, serrated, pointed, green, and unequal Leaves. The Top of the Stalk bears an Ear a Foot long, smooth, and covered with Flowers of a fine violet Azure, or the Colour of our *Viola Martia*, consisting of five roundish Leaves. The whole Flower is not unlike the *Viola Martia*, and has somewhat of its Smell. The Root is strait, of a moderate Thickness, and shoots out into Abundance of lesser ones, and these again into Filaments.

There is another Kind, distinguished from the former, by the Wideness of its Ear of Flowers, which is marked with cubic Pits, and represents an Helmet, of a green Colour. From those Pits proceed azure Flowers, as in the other. *Raii Synop. 2. 1337.*

AGUL. J. B. *Albogi Maurorum, Rauwolf. Genista Spartium spinosum foliis Polygoni*, C. B.

Agul is a little Shrub very prickly, the Leaves are longish, and resembling those of the Knot-grass; abounding with Flowers, of a Colour somewhat red. They are succeeded by red Husks. Its Root is long, of a purple Colour. This Plant grows in Arabia, in Persia, and in Mesopotamia. They find in the Morning on its Leaves Manna as big as the Grains of Coriander, of the same Taste and the same Smell as ours, but if they let the Sun shine upon it, it melts.

The Leaves of this Tree are esteemed Purgative. *Lemery de Drogues.*

AGUTIGUEPA *oli Brasilensibus. Marggr.*

The Root is round in its upper Part, of a dark Red, and eatable. It shoots obliquely downwards six, seven, or eight Fingers into the Earth, and has Abundance of thick Filaments. From this Root arises a Stalk, three, four, or five Feet long, Reed-like, strait, of a Finger's Thickness, bearing here and there, on Pedicles, two or three, and even five or six Fingers long, Leaves a Foot, or a Foot and half, and sometimes two Feet long, and four Fingers broad, sharp-pointed, of a fine Green, shining, like Vellum, or the Leaves of *Paco-cira*, to the Touch; graced with a Rib, which runs its whole Length, and very subtle Veins, which spread themselves obliquely over

it, and moreover bordered about, or edged, with a red Line. On the Top of the Stalk grows a Flower like a Lilly, of a very fine Carnation and Flame Colour, consisting of three or four Leaves, each of which has three, four, or five Chives, or Stamina, of the same Colour, in the Shape of a Boar's Tooth.

The Root bruised heals Ulcers, cleanses and incarnates them. Boiled, or roasted, it serves to eat in Time of Dearth.

AGUTI TREVA, or *AGOUTI TREVA, Insulae marignae. De Laet.*

It has the Leaves of the Orange-tree, only thinner, a dewy Flower, a large Fruit, with a greenish Rind, and contains Kernels like those of the Pomegranate, thin, sweet, and not ill tasted. *Raii Hist. Plant.*

AGYION. *Ἀγίον.* From a Negative, and *ἴσως*, a Limb. Weak, feeble. It is used by Hippocrates (*de Morbis Mulierum*) L. 1. to express the Weakness of a Foetus, that is very small.

AGYNOS. From a Negative, and *ἴσως*, a Woman. A Name for the *Agnus Castus*, so called because it is said to promote Chastity. *Blancard.*

AGYRTÆ. From *Ἀγύρῃς*, a Croud of People, or a Mob; or from *Ἀγύρῃς*, to gather together. Quacks, Mountebanks, People that went about from Place to Place offering Medicines to Sale. These were also called *Circulatores, Circumforanei, Ὀχλαγωγοί, Ochlagogi, and Pharmacopole*, for this last Word, though applicable strictly to any Venders of Medicines, was however particularly used to signify this Sort.

This Way of practising Physic is very antient; for there have in all Ages been Impostors, who have found the Art of making a private Advantage of the Weakness of others, and who have talked the Ignorant into a good Opinion of their Medicines, Amulets, and Charms. Aristophanes takes Notice of one Eudamus, who seems to have been of this Profession, his Manufacture was Rings, which he pretended were effectual Cures for the Bites of venomous Animals. Tully mentions Clodius of Ancona, whom he calls *Pharmacopola Circumforaneus*, and who dealt in Poisons. And Galen speaks of one Chariton, whom he call *Ὀχλαγωγός*.

AHATE DE PAUNCHO RECCHI.

It is a Tree of a moderate Bigness, and about twenty Feet high, covered with a fungous Bark, which is red on the Inside. The Wood is white and extremely hard; but the Heart, or inner Substance of the same is greenish, without Smell, of a bitterish and somewhat austere Taste. It produces but few Branches, which, as well as the smaller Boughs and Sprays, are all covered over with a green Bark, marked here and there with small Ash-coloured Spots. The Root, which is yellowish, is covered with a Bark of a deep Red, smells strong, and has an unctuous Taste; it shoots out into Abundance of Fibres, which however do not spread far in the Ground. The Leaves are oblong, smooth, and bare, not unlike the Leaves of *Malakatijambou*, but not answering one against another; their upper Part green and shining, the under greenish, when rubbed in the Hands unctuous, but without Smell. The Flowers join by their Pedicle to lesser and finer Leaves, that fall off; these Flowers consist of three thick, triangular, and Leather-like Leaves, whitish on the Inside, but on the Outside of a faint Green, and, if thrown into the Fire, sending forth a Smell like burnt Leather.

From the Stamen of the Flower proceeds the Fruit, or rather the Cone, when ripe about the Bigness of the common Citron, green and striated on the Outside, but whitish within, and full of a juicy Pulp, of a grateful Taste, and pleasant Smell. The Seeds in this Fruit are oblong, smooth, and bare, shining, of a plain Superficies, inclosed in Husks, and neatly covered over with the juicy and whitish Pulp of the Fruit. The Fruit is gathered before it is ripe, and grows mellow, like a Medlar, before it is eaten.

The Tree is not a Native of Malabar, but was brought into India from the Philippine Islands. It delights in a hot and moist Situation, in Ground well seasoned with Horse-Dung that wants no Watering nor Sunshine.

At two or three Years Growth it bears Fruit. The Blossoms it produces in April, are ripened about August, and the Blossoms of September are ripened into perfect Cones in February following. It will bear Fruit at fifty Years old, or more, with proper Culture.

The Leaves beaten very small, and with an Addition of Salt reduced to the Form of a Cataplasin, are a powerful Ripener of malignant Tumors. The unripe Fruit boiled in common Water with a little Ginger cures the Vertigo; but after sufficient Preparation, they are eaten for Pleasure, and mightily refrigerate, and loosen the Belly, if you drink Water after them. *Raii Hist. Plant.*

AHENUM. A Kettle, or Pot, properly of Brass, but used to signify one of any other Metal. It claims a Place in a Medicinal Dictionary, because Writers on the Subject of Pharmacy frequently mention it.

AHIUS. Salt-stone. *Rulandus.*

AHMELLA. See *ACMELLA.*

AHOVAI THEVETI CIUSII. *Park. Arbor Americana foliis pomi fructu triangulo*, C. B. *Aioai. Haouway.*

Ahouai

Ahouai is a Fruit of Brasil, as big as a Chestnut, white, resembling in Figure the *Tribulus Aquaticus*, or Water-Caltrops; it grows to be as large as a Pear-tree, the Bark is white and full of Juice, the Leaves are two or three Inches long, and two Inches broad, always green; its Flower is composed of one Leaf, formed as a Funnel, divided at the Edges in many Parts: There arises from its Cup a Pestil which soon after becomes the Fruit.

If they make Incisions in the Bark, a Sort of milky Liquor issues out, of an unpleasant Smell, like Garlic.

Its Fruit is a pernicious Poison. *Lemery de Drogues.*

Miller enumerates two Species of *Ahouai*:

1. *Ahouai*, Thev. Franc. Antarct. 66.

2. *Ahouai nerii folio, flore lutea*, Plum. *Ahouai* with an Oleander Leaf, and a yellow Flower.

These two Plants grow in great Plenty on the Continent, in the Southern Parts of America, but are less common in the Islands; the Wood of this Tree stinks most abominably, and the Kernel of the Nut is a most deadly Poison, so that the Indians always caution their Children against eating of it, for they know of no Antidote to expel this Poison, nor will use the Wood of this Tree for Fuel. *Miller's Dictionary, Vol. 2.*

AHUSAL. The Sulphur of Arsenic, called by Chymists the *White Eagle*.

AJARAZAT. Lead. *Rulandus.*

AIDRIS. Ἀἰδρίς. From α Negative, and ἰδρίε, *skilful. Unskilful, ignorant.*

AIPATHIA. See AEIPATHIA.

AIRA. Ἀῖρα. *Lolium, Darnel.* A Plant growing much amongst Wheat. Hippocrates (*de his quæ Utero non gerunt*) directs to gather the Darnel from Wheat, and bruise it a little, or grind it, and use it as a Fomentation in uterine Disorders.

It is frequently mentioned by Theophrastus, and Dioscorides gives an Account of its medicinal Virtues.

It is thus distinguished by modern Botanists: *Lolium*, Offic. *Lolium album*, Ger. 71. Emac. 78. Raii Hist. 2. 1262. Synop. 3. 395. Park. Theat. 1145. Hist. Oxon. 3. 181. Merc. Bot. 48. Phyt. Brit. 69. Mer. Pin. 73. *Lolium verum*, Boerh. Ind. A. 2. 157. *Lolium Gramineum spicatum, caput tentans*, J. B. 2. 437. *Lolium Phœnix, gramen Loliaceum*, Chab. 187. *Gramen Loliaceum spicâ longiore*, C. B. Pin. 5. Rupp. Flor. Jen. 245. Buxb. 146. Elem. Bot. 418. Tourn. Inst. 516. *Gramen Loliaceum, spicâ longiore, seu Lolium Dioscoridis*, C. B. Theat. 121. **DARNEL.** Dale.

It is called *Lolium*, as if it were δόλιον, that is, *adulterine*, for it is supposed to be generated of the corrupted Seed of Barley and Wheat. The *d* is changed into *l*, as from the Æolic ὀδύσσιος, comes *Ulysses*; from δάκρυα, *Lachrymæ*, or it is named Ἀπὸ τῆ λαΐον ἐλαΐν, that is, *from destroying the Corn*, or λαΐον ἐλαΐν, that is, *hurtful Corn*.

Darnel is distinguished from other Grain by its slender, flat, Ear, and by its Grains with their Husks, on both Sides, as far as the Stalk, being situate in the same Plane.

It has a fibrous Root, with very fine Capillaments, and a Stalk two or three Cubits high, and as big as the Stalk of Wheat, or perhaps somewhat less, divided by four or five Joints, with a single Leaf at each, as in other culmiferous Plants, narrower and greener than those of Wheat, shining, smooth, fat, striated, enwrapping the Stalk almost to the next Joint, and after parting from it, extending a Hand and half, or two Hands in Length. The Stalk bears an Ear a Foot long, of a peculiar Figure, for three, four, or five, and sometimes six or seven Grains proceed alternately from the Sides of the Stalk, in the Form of a small Ear, without Pedicles, each of these little Ears having a small Leaf embracing them. The Grains are less than Wheat, and inclosed in single dark-coloured Husks, which end in a fine sharp Beard, which sometimes is wanting. It grows too often among Corn, especially Wheat. *Raii Hist. Plant.*

Darnel, by some called *Thyrus*, which grows amongst Wheat, being ground to a Meal, and made into a Cataplasm, with Radishes and Salt, has the Virtue of scowering the Edges of putrid and eating Ulcers, and Gangrenes. With crude Brimstone and Vinegar it cures malignant Lichens and Leprosies. Boiled in Wine, with Doves-dung and Linseed, it dissolves Strumæ, and breaks such Sores as are with Difficulty brought to Maturation. Boiled in Hydromel, and applied in Form of a Cataplasm, it cures the Sciatica. Used in a Suffumigation with Potenta, Flour of dried or parched Barley, Myrrh, and Saffron, or Frankincense, it promotes Conception. *Dioscorides, Lib. 2. Cap. 122.*

Lolium [Darnel] is called by Virgil *infelix* [unlucky] and yet the Meal of it boiled in Vinegar, and applied, cures the Impetigo [a Sort of Leprosy] and the sooner, the oftener it is changed. Given in Oxymel, it cures the Gout and other Pains. The Way of Preparation for these Purposes is somewhat peculiar, and is as follows: Let two Ounces of Honey be diluted with one Pint of Vinegar, which is a just Proportion. Boil two Pints of Darnel Meal in three Pints of this Mixture to a convenient Thickness, and apply it hot to the pained Part. The same Meal draws out Splinters of Bones. *Plinii Nat. Hist. L. 22. C. 25.*

Darnel heats and dries, attenuates, dissolves, and cleanses. Mixed with Malt, it promotes Drunkenness. A great Quantity of it in Bread renders them who eat it stupid, and, as it were, fuddled. Hence by some it is called *Drunken Wheat*, by the French *loray*, as it were, *drunken*.

Most of the Antients, and many of the Moderns, have imagined that Wheat degenerates into Darnel; but the more curious Naturalists have questioned the Truth of this, and for good Reasons.

Though Darnel taken inwardly causes a sudden Vertigo, outwardly applied, with the Fat of a Goose, it remedies the same.

It hurts the Eyes, and creates a Dimness, by the acrid Vapour it elevates to the Brain. Hence they who are weak-sighted, as purblind and near-sighted Persons, are said, by the Proverb, to feed on Darnel. *Raii Hist. Plant.*

AIRI. See HAYRI.

AISTHESIS. See ÆSTHESIS.

AISTHETERIUM. The common Sensory, or, if I may so call it, the Laboratory of Sensation; this is the Place whither the Nerves convey the Impressions made on them by sensible Objects. Many have been the Opinions of Authors, with Respect to this Place. The Cartesians imagine it to be the Pineal Gland. Willis endeavours to prove it the Beginning of the Medulla Oblongata, in the Corpora Striata. Till the Union of the Soul with the Body is better known, it will be a difficult Matter to determine the Place where Sensation is performed.

AITMAD. The Arabian Name for *Antimony*. *Castellus from Fallopius.*

AJUBATIPITA BRASILIENSIMUM. The Name of a Shrub five or six Palms high, bearing a Fruit like Almonds, but black, whence is extracted an Oil of the same Colour, with which the Savages use to anoint enfeebled Joints. *Raii Hist. Plant.*

AJUGA. A Name for *Chamæpitys*, Ground Pine. See CHAMÆPITYS. A Dose of two Drams in Powder, with Figs, or boiled Honey, purges Phlegm sufficiently. *Alvarius de Methodo Medendi, L. 5. C. 8.*

AIZOON. *Aizoon palustre*, J. B. Aloe 4. seu palustris, C. B. *Stratiotes five militaris Aizoides*, Ad. Lob. *Stratiotes aquatica*, Lugd. *Stratiotes potamios*, Dod. Gal. *Sedum aquatile*, Dod. fol. It is an aquatic Plant, resembling common Aloes, but its Leaves are less, and rough at the Edges: There arises from the Middle of these a Sort of Conduits, disposed like the Legs of a Lobster, which opening, there appear white Flowers composed of three Leaves, having in its Middle little yellow Hairs; its Roots are composed of long, round, and white Fibres, resembling Worms. This Plant grows in Morasses, and in other watery Places: It contains a great deal of Oil and Phlegm, but little Salt.

It is proper to cool and to thicken the Humours, externally applied. *Lemery de Drogues.*

AKIBOT. Sulphur. *Rulandus.*

AKON. A Whetstone. *Rulandus.*

AL. The Arabian Article which signifies *The*. It is frequently applied to a Word by way of Eminence, in the same Manner as the Greek Article ὁ.

It is commonly known that, among the Orientals, the Manner of expressing the Superlative is by an Addition of the Name of God, as the *Mountains of God*, for Mountains of an extraordinary Height; and it is not impossible that *Al*, when used by way of Eminence, may have a more particular Relation to the Word **ALLA**, God; so that Alchemia may be not only *The Chymistry*, but the Chymistry of God, that is, the most exalted Perfection of the Chymical Science.

ALA. In Botany, is the Hollow of a Stalk, which either the Leaf, or the Pedicle of the Leaf, makes with the Stalk or Branches; or it is that hollow Turning or Sinus, placed between the Stalk or Branch and Leaf, from whence a new Offspring is wont to put forth, which the French call *Aisselles des Plantes*. Sometimes it is taken for a little Branch, as when they say, a Stock or Stem, armed with many *Alæ*, because Branches grow to the Stock as so many Wings.

Alæ is also used to signify those Petals of papilionaceous Flowers placed between the Vexillum and the Carina, which the French call *Les ailes des Fleurs legumineuses*.

Alæ is also used for those extreme slender membranaceous Parts of certain Seeds, as in the Bignonia Plumeria, the Fruit of the Maple, &c. which the French call *Sementes Ailettes*. Again,

Alæ is used for those foliaceous Membranes which run the whole Length of the Stem; whence it is called *Caulis alatus*, a winged Stem, in French, *Tige Ailée*. *Miller's Dictionary, Vol. 1.*

ALÆ NASI, otherwise called **PINNÆ NASI**, are the Cartilages which are joined to the Extremities of the Bones of the Nose, and which form the lower and moveable Part of that Organ. See **NASUS**.

ALÆ AURIS, or **PINNÆ AURIS**, is the superior Part of the external Ear.

ALÆ. The *Arm-pits*. To take off their rank Smell, take two Parts of liquid Allum, and one Part of Myrrh dissolved in Wine.

Wine. Or take Litharge burnt and quenched in fragrant Wine, and beat it in Wine, putting in a little Myrrh, till it become of the Consistence of Honey. Or take sixteen Drams of Spuma Argenti, two Drams of Myrrh, and one Dram of Amomum, and moisten them with Wine. Or, lastly, take of liquid Allum eight Drams, of Amomum, Myrrh, Spikenard, each four Drams; bruise them in Wine. *Paulus Aegineta, Lib. 3. C. 36.*

Aetius advises to drink the Decoction of the Root of Scolymus in Wine, which, he says, brings off Abundance of foetid Urine, and by that Means cures not only the Foetor of that Part, but all over the Body. *Aetius, Tetrab. 1. Sermon. 1.*

This is taken from Dioscorides by Aetius. The Scolymus of Dioscorides is the wild Artichoke, or Cardonet. See SCOLYMUS.

ALÆ. The Nymphæ are so called by Aetius, who, in Case of an Abscess in that Part, or the Labia Pudendi, which extends towards the Anus, advises to forbear Incision; for a Fistula, he says, is soon generated from the Rugosity of that Part; but if it spreads upwards, towards the Urinary Passage, that Operation may be safely undertaken. *Act. Tetr. 4. Sermon. 4. Cap. 120.*

ALÆ. The Wings of a Fowl. These considered as an Aliment are hard and fibrous. The Wings of Geese are good Aliment, but those of Pullets are better. *Oribas. Collect. Lib. 2. Cap. 43. 44.*

Alaris Vena. The internal Vein of the three opposite to the Elbow, in one of which Bleeding is performed. This Vein has under it an Artery, the middle one a Nerve, and therefore ought to be cautiously dealt with; but the Superna, or outer one, called also *humeralis*, may be opened without any Danger. *P. Aeginet. Lib. 6. Cap. 40.*

ALABANDICUS, or ALABANDINUS LAPIS. A Stone of a blackish Colour, intermixed with a fallow. It is pellucid, and looks as if it was divided by Fissures into Segments. The Powder of this Stone makes gray Hairs black. *Aetius, Tetrabib. 1. Sermon. 2. C. 33.*

ALABARI. Lead. *Rulandus.*

ALABASTRA. Are those green herbaceous Leaves that encompass Flowers. Jungius explains *Alabastrum* to be the Globe or roundish Bud, that is but just peeping out. *Miller's Dictionary.*

ALABASTRON. The Ointment *Alabastron*, with which Mary anointed the Lord. It is useful in all Diseases of the Uterus and Reins, and for Bruises, by the Blessing of our Lord Jesus Christ.

Take of green Savin two Ounces and a half, Cypress Turpentine two Drams and a half, green Rosemary, Sage, Leaves of Ground-ivy, Yarrow, Mugwort, Avens, Fenugreek, Linseed, each two Ounces and a half. Bruise them together in a Mortar, and then boil them in twelve Pints of Water; after which add to them two Pounds and a half of Oil, and boil them again till all the Water be evaporated. Strain them, and boil once more, adding of Wax, Colophony, Turpentine, Galbanum, Gum Hedera, Spanish Pitch, Resine, Frankincense, Mastich, each two Ounces and a half; Styrax, Calamita, Ammoniac, Spikenard, each one Pound and a half; Oil of Balsam an Ounce and a half. *Myrepsus, Sect. 3. Cap. 61.*

I cannot determine whether Myrepsus is right, or not, when he says, this was the Ointment which was poured on our Saviour. The Word in the New Testament, which we translate, *an Alabastrer Box of Ointment*, is, *Ἀλάβαστρον μύρου*. This Constantine interprets, *a Vessel of Ointment without Handles*, from a Negative, and *λαμβάνω*, to take hold.

Other Authors say, that Alabastrer, as being very solid, was used by the Antients for Vessels to put their precious Ointments in, because it preserves them very well. Hence, perhaps, these Sort of Vessels took the general Name of *Alabastra*. And it is not unlikely, that the most precious Sort of Ointment might take the Name of *Alabastron* from the Vessels it was usually preserved in; and if this is true, Myrepsus may be right.

ALABASTRUM.

1. *Alabastrum* & *Alabastritis*, Offic. Mer. Pin. 211. Worm. 42. *Alabastrum*, Aldrov. Mus. Metall. 748. Kentm. 54. Charlt. Foss. 18. *Alabastrites* seu *Alabastrum*, Boet. 490. *Lapis Alabastrites*, Matth. 1386. *Alabastrites*, Schrod. 345. **ALABASTER.** A white Stone, much known, a Kind of Marble, but softer.—It is found in Staffordshire, Derbyshire, and other Places. *Dale.* The burnt Stone, applied with Rosin or Pitch, dissolves Hardness; with Cerate, eases Pains in the Stomach, and softens the Gums. *Dioscorides.*

2. *Alabastrum Citrinum*, Mont. Exot. 14. **YELLOW ALABASTER** has the same Virtues as the former. *Mont.*

3. *Gypsum*, Offic. Mer. Pin. 213. Kentm. 25. Worm. 46. Charlt. Foss. 20. Boet. 398. Aldrov. Mus. Metall. 673. Matth. 1376. **TARRAS, PLAISTER OF PARIS.**

Authors dispute about the *Gypsum*; some will have it to be the Calx of Alabastrer; others that of Allum of Scajola; others make it the Calx of Muscovy Glais; and some that of the Se-

lenite Stone. But our *Gypsum* is a Lime, made of some whitish Stones, and opaque Bits of Talk, slightly burnt till they sparkle. The best, according to Doctor Merret, is in Derbyshire, and used in flooring and cieling of Houses. The very learned Dr. Lister, in his *Journey to Paris*, says, there are Quarries of this *Gypsum*, or *Alabastritis*, at Montmartre, and that they burn it in an open Fire, the hardest requiring no more than three or four Hours Burning. He saw also a Quarry of it at Clifford Moor in Yorkshire, where it is called **HALL-PLASTER.**

It is of a drying Quality, and stops Bleeding. It is used by Painters and Statuaries; and also by Plaisterers, as at Paris.

Some prescribe the *Alabastrites* burnt in Disorders of the Stomach. *P. Aeginet, L. 7. C. 3.*

Lemery adds, that it absorbs, as an Alcali, the Acrimony which falls from the Gums in the Scurvy. *Lemery de Drogues.*

The Oriental Alabastrer, which is transparent, is famous in those Countries. There are many Quarries of it in Cambaia. The Arabians call it *Rokham Alabiadb.* *Herbelot.*

ALACAB. *Sal Ammoniac.* *Castellus* from *Rulandus.*

ALACHASCHEE. *Rulandus* explains this by **TRIBULUS**, which has many Significations, so that it is difficult to know what he means.

ALACNOTH. *Castellus*, from *Avicenna*, informs us, that a Man who by Reason of a great Resolution in Coitu Venereo discharges his Excrements in the very Act, is thus called in Arabic.

ALAFI. *Alcaline Salt.* *Castellus.*

ALAFOR, and ALAFORT. *Alcaline Salt.* *Rulandus.* Johnson calls it *Vas, a Vessel.*

ALAFREG. A Species of *Cerusi.* *Rulandus.*

ALAHABAR. Lead. *Rulandus.* *Castellus*, says Johnson, explains it *Calx, Lime*, but I do not find the Word in Johnson in any Signification whatever.

ALAHATIB. *Rulandus* explains it *Lapis rubens*, the red Stone.

ALAI A PHTHISIS. *Ἀλαία φθίσις.* From *ἀλαός*, blind. Galen, in his *Exegesis*, quotes this from Hippocrates's Treatise *de Locis in Homine*, but there is at present no such Word in it. Foetus has however cleared up this Difficulty. Hippocrates in this Book giving an Account of several Distempers, which he says, are caused by a Fluxion of Humours from the Head, says, if it falls on the (*μυελος*) spinal Marrow, I suppose he means, another Sort of Consumption happens (*φθίσις ἀλλή γίνεται*). Here *ἀλλή* should be altered to *ἀλαία*, and then the Sense will be, that such a Fluxion will cause a Consumption which wastes the Patient insensibly, as an Atrophy, or perhaps a *Tabes Dorsalis*.

ALAI S. Johnson explains this *Vas, a Vessel.*

ALAMANDINA. A precious Stone mentioned by Dornicus, in his Treatise *de Gemmarum Structura.* *Castellus* thinks, he means the **LAPIS ALABANDICUS.**

ALAMBIC. See **ALEMBIC.**

ALANABOLUS. A Sort of Earth, mentioned by Paulus Aegineta, *L. 7. C. 3.* which, he says, has the same Virtues as the Armenian Bole. It is without Dispute the same as **ALANA TERRA.**

ALANA TERRA, called also *Terra Tripolitana* & *Tripolis*, Offic. *Tripolis*, Schrod. 320. *Terra seu Gleba Alana*, Calc. Mus. 131. *Alana Terra, vulgò.* **ENGLISH OKER.** It is esteemed drying and astringent. Its principal Use is to mix with Salts in Distillation, in order to keep them from melting. *Dale.*

Alana Terra is a light Stone, of a white Colour, inclining a very little to red, they get it in many Mines of Britany, Auvergne, and Italy; they believe, that the Lightness of this Stone proceeds from a Calcination it has undergone by subterraneous Fires. We see two Sorts of it in France, the first and the best is that which they get from a Mountain near Rennes in Britany; they find it dispersed in Beds about a Foot thick. The Lapidaries, the Goldsmiths, and the Braziers make Use of it to whiten and polish their Work.

The Second, and the least esteemed, they get from Auvergne, near Riom; it is divided into Lamina, neither the Lapidaries, Goldsmiths, nor Braziers can make Use of it; it is sometimes employed to scour and whiten Kitchen Furniture.

It is deterfive and desiccative, externally applied; but it is not much used in Medicine.

It is thought that this Stone is what the Antients called *Samius Lapis*, or *Samian Stone.* *Lemery de Drogues.*

ALANDAHAL. *Colocynthis.* *Johnson.*

ALANFUTA. The Name of a Vein, situated betwixt the Chin and Under-lip, which used to be opened to cure a foetid Breadth. *Castellus* from *Avicenna.*

ALAPÆ. *Cuffs, or Slaps with the flat Hand.* These are directed by Aetius, *Tetrabib. 3. S. 1. Cap. 8.* in order to revive People who faint from staying too long in a hot Bath.

ALAUQUECA is a Stone which is found in little polished Fragments, at Balagate in the Indies.

It is very much esteemed to stop Bleeding, externally applied. *Lemery de Drogues.*

ALARIS, or **ALIFORMIS**. *In the Shape or Form of a Wing.*
ALARTAR. *As Ustum. Burnt Brads.* Rulandus.
ALASALET. *Sal Ammoniacum.* Rulandus.
ALASTROB. *Lead*, according to Rulandus; but according to Johnson, *Lime.* Castells.

ALATAN. *Litharge of Lead.* Rulandus.

ALATERNUS. This is the *Alaternus*, Offic. Chab. 43. Park. Parad. 603. *Alaternus* 2. Clusio. J. B. 1. 542. *Alaternus major & minor*, Raii Hist. 2. 1608. Park. Theat. 1445. *Spina Burgi Monspeliensis*, ejusd. *Alaternus Plinii*, & *humilior*, Ger. 1212. Emac. 1398. *Alaternus*, five *Philyca elatior & humilior*, C. Bauhini. Pluk. Almag. 12. *Alaternus* 1. *Clusii & minor folio*, Tourn. Inst. 595. Boerh. Ind. A. 2. 213. *Alaternus prior & altera*, Clus. Hisp. 56. Elem. Bot. 468. *Philyca elatior & humilior*, C. B. Pin. 476. Jons. Dendr. 261. EVERGREEN PRIVET.

It is a small Shrub, about the Bigness of the Privet, covered with a black Bark, almost like that of the Cherry-tree. Its Wood is of a light Yellow, the Leaves oblong towards the Top, moderately large, firm, set all round with small Prickles, disorderly placed, resembling those of the Philyrea, but disposed in alternate Order on the Branches, whence it takes the Name *Alaternus*, whereas the Leaves of the Philyrea grow in Pairs, Side by Side. The Flowers are small, and stand many together. They are shaped like a Funnel, or Top of a Tent, and cut Star-like into five Points, or Rays, of a white Colour, odorous, succeeded by Berries, about the Bigness of Elder-berries, clustered like Grapes, soft, juicy, black when they are ripe, each inclosing three Seeds joined together, rounded on the Back, and flattened on the Sides where they touch. The Roots run a great Way in the Earth. It grows in the Hedges, and is cultivated in Gardens. It contains much Oil and Phlegm, and but little Salt. *Lemery des Drogues.*

The Plant is of a deterfive, astringent, and cooling Nature, and is used in Gargarisms for Inflammations of the Mouth, and for the Quinsy. *Boerhaave. Lemery.*

The Fruit moderately binds the Belly. *Dale.*

Clusius confesses, that he knew no Use of either of the two Kinds of his *Alaternus*, but that he was assured by the Portuguese, that their Fishermen used to dye their Nets of a reddish Colour, with a Decoction of the Bark in Water; and that Dyers used the Decoction of the Chips of the Wood, which is of a pale Colour, to give a dark Blue. *Raii Hist. Plant.*

Another Species of the *Alaternus* is the

CELASTRUS, Offic. Jons. Dendr. 262. *Celastrus Theophrasti*, C. B. Pin. 477. Ger. Emac. 1600. Park. Theat. 1448. *Celastrus Theophrasti Clusio*, Parad. 603. *Alaternus latifolia*, *Celastrus diela*, Heim. Cat. Hort. Lugd. Bat. 11. Raii Hist. 2. 1608. *Alaternus Hispanicus*, *Celastrus diela*, Boerh. Ind. A. 2. 213. THE STAFF-TREE. *Dale.*

It grows to above a Man's Stature, with a firm and hard Body, which runs out into many Branches, that are covered with a green Bark while young, but blackish after a Year. The Leaves are numerous, always stand opposite, and are thick set, of a deep Green on the upper Face, but fainter on the lower, perennial, that is, never falling off, till displaced by new ones, which is the Case of most Evergreens. The Leaves are of a shining Smoothness, and no larger than those of the *Alaternus*, but most of them smaller, especially those of a Year old, which cover the lower Part of the Sprays, not jagged, especially the young ones, which, though they seem to have somewhat resembling Jaggs, cannot be called jagged; they are of a bitterish Taste. At the utmost Part of the young Sprays, among the Leaves, grow Pedicles, which bear five or six small Flowers, consisting generally of four or five small Leaves, of a greenish Yellow, and a sweet Smell, disposed in Clusters like the Flowers of the Mastic-tree, not expanded in the Form of an Umbrella, like those of the Wild Bay, or Elder. They open very late, and not before the latter End of Autumn, or Beginning of Winter, and sometimes not before the mild Air of the Spring breathes on it. So far Clusius; to which P. Paauwius adds, This Tree in the Leyden Garden, 1610, in the Month of June, began to shew the Rudiments of a Fruit, producing a short Pedicle, on which grew a Berry, about the Size of a Myrtle-berry. While growing it was green, but red at its full Growth, which turned by Degrees from a light Red to a coral Colour, extremely like the Berry of Sparrow-grass, I mean the lesser Sort. It kept up this lovely Colour to the Beginning of August, when its Skin, or Superficies, began to shrivel, and at the same Time to change Colour, and from a round to become of an oblong Figure, turning first of a dusky Colour, which grew at last to a Coal Black. After it fell off, we discovered in its Inside one single oblong, and in some Sort triangular, Seed, very like the Kernels of Grapes, and breaking the Shell, which was hard and somewhat stony, we found but one Kernel, covered with a thin Membrane, or Skin, of a Saffron Colour, under which lay the Pulp; hard, whitish, and like that of an Haste-nut. *Raii Hist. Plant.*

A third Species of the *Alaternus* is the

CASSINA Offic. C. B. Pin. 170. *Herba Cassiana famem sistimque retardans*, J. B. 3. 631. Chab. 655. *Cassine vera Floridanorum*, *Arbuscula baccifera Alaterni ferme facie, foliis alternatim*

Jitis, tetraphyrene. Pluk. Mant. 40. Phytog. Tab. 376. f. 2. *Apalachine five Cassine*, Ind. Med. 11. *Alaternoides Africana Lauri ferrata folio*, Comm. Rar. Exot. 1. 61. CASSIN? *Dale.*

It grows in Carolina. The Leaves are about an Inch long and half as wide, shaped like the Leaves of Sena, blackish when dried, shining in the upper Part, but greener underneath, of no Smell, but a Taste somewhat aromatic.

It is accounted a very good Medicine in the Small-Pox, restraining the immoderate Fermentation of the Blood, without putting too great a Check upon the expulsive Faculty. It promotes Expectoration, preserves the Lungs, and keeps off the Small-Pox from the Head and Throat. *Dale Pharmac.*

The fourth Species of the *Alaternus* taken Notice of by Dale is the

PERYGUA, Offic. Marl. Obs. Mont. Exot. 8. *Cassine vera perquam similis Arbuscula Phyllireæ Foliis antegonistis ex Provincia Carolinensis*, Pluk. Mant. 40. Phytog. 381. f. 3. THE CASSIO-BERRY BUSH.

It is found in Carolina. The Fragments of the dried Leaves, and the Powder of the Stalks, are used.

Sometimes it purges, at other Times excites Vomiting, or promotes insensible Perspiration, still acting as Nature inclines. It is accounted an excellent Specific in the Diabetes, and several Histories of Cures done by it in that Distemper are related by Marloe. A Tea made of the Herb is good in the Nephritic Colic.

Of what Plant the Perigua are Fragments, is a Question not easy to be determined, nor can the Opinions of learned Botanists be well reconciled. Some take it for a Species of *Alaternus*, whose Authority I have followed in placing it here. Others put a Question, whether it be the *Peragua*. *Hort. Mal. Tom. 2.* To me it seems most likely to be the Plant of which Du Biscay gives an Account, in his Voyage on the Rio de la Plata, by the Name of the Plant of Paraguay, which the Natives use as a Preservative against noxious and mineral Vapours, and also for a Vomit on Occasion. Query whether the Fragments of Plants of late imported, under the Name of PARAGUAY-TREE, be the same with the forementioned Perigua of Marloe. *Dale Pharmacologia.*

Miller enumerates six Species of *Alaternus*.

ALATERNOIDES [from *Alaternus* and *ἴδω* Gr. Form or Shape] a Sort of *Alaternus*.

This differs from the *Alaternus* in having three Seeds joined together, in the manner of Tithymallus (or Spurge) whereas the *Alaternus* has three Seeds inclosed with one common Covering, and appears to be a single Berry till it is opened.

Miller enumerates three Species of *Alaternoides*.

ALATI. Those are called so whose Scapule, or Shoulder-blades are very prominent, and stand like Wings. Those who have such a Conformation are esteemed very subject to a Consumption.

ALATI PROCESSUS, or **ALARES**, are Processes of the *Os Sphenoides*. See SPHENOIDES.

ALAUDA, a Gallic Word for *Galerita*, a Lark. This Bird is a most effectual Remedy in all Pains of the Colon and other Intestines, both for Men and Cattle, whether it be roasted and eaten, or burnt to Ashes, and three Spoonfuls thereof carefully pulverized given in warm Water for three Days together.

It is called by the Greeks *Καρδαλὸς*, and is to be burnt Feathers and all, in an earthen Pot plaistered over, and set in a Furnace, till it may be reduced to Powder. *Marcellus Empiricus. Cap. 29.*

The Lark eaten with the Broth made of it cures the Colic; but it ought to be frequently used. *Paulus Aegineta. Lib. 7. C. 3.*

The Lark is a little grey Bird very well known, celebrated for its agreeable Singing early in the Morning, when it is fine Weather; she lays her Eggs in May, July, and in August; her young ones are ready to fly in ten or twelve Days.

There are two Sorts of Larks, one that has a Crest, and another without one; the last fly in Flocks. The Lark is esteemed the Harbinger of the Spring; that with a Crest lives more on the Ground than the other; they both eat Wheat, Worms, and Pismires; they keep some in Cages; when young they are a delicious Meat; their Flesh is firm, brown, and of a good Juice easy to be digested; those are most eligible which are very tender, and well fed.

The Heart and the Blood of Larks are good for the windy Colic, and to extricate Gravel and Phlegm from the Kidnies and Bladder.

Schroder says the fresh Blood, taken in sharp Vinegar, or warm Wine, effectually relieves the Stone and Gravel.

They say that the Name *Alauda* is taken from the ancient Gauls, and that Julius Caesar having raised Soldiers in France they were called by the Name of Larks, because the Figure of their Head-piece resembled a Lark with a Crest. *Lemery de Drogues.*

When the Lark is old, her Flesh is hard, dry, and difficult of Digestion, and the Juice bad.

It contains much Oil and volatile S. li.

It agrees with any Age and Constitution, especially in Autumn when this Bird is fatter and more delicious, than at any other Time of the Year.

The Lark is a delicious Bird, and much esteemed for the Goodness of its Taste, and the happy Effects it produces. As it is much upon the Wing its Perspiration is abundant, and consequently it must contain but a few gross Humours, and many volatile and exalted Principles. *Lemery on Foods.*

As the Lark uses much Exercise, its volatile Salts must be much exalted, and its Juices alcallescent, especially as it feeds sometimes on Insects.

The crested Lark is thus distinguished, *Galerita*, Offic. Bellon. des Oyse. 268. *Alauda cristata*, Schrod. 5. 314. Aldrov. Ornith. 2. 841. Mer. Pin. 176. Jonf. de Avib. 70. *Alauda cristata, albicans*, Gen. de Avib. 72. *Alaudas cristata major*, Raii Synop. A. 69. *Alauda cristata, Galerita*, Ejusd. Ornith. 208. *Alauda cristata, Vienna Austriæ visa & descripta*, Will. Ornith. 151. *Alauda, Galerita cassita, cristata*, Charlt. Exer. 88.

The Sky Lark is thus named by Authors, *Alauda*, Offic. Mer. Pin. 176. *Alauda non cristata*, Schrod. 5. 314. Jonf. de Avib. 70. Aldrov. Ornith. 2. 844. Bellon. des Oyse. 269. *Alauda vulgaris*, Raii Ornith. 203. Ejusd. Synop. A. 69. Will. Ornith. 149. *Alauda altera*, Gesn. de Avibus.

ALAUROT. Nitre. *Rulandus.*

ALBA ANIMALIA. White Animals are almost universally weaker than black ones, which is evident from comparing their Flesh together, that of the latter being more savoury. *Act. Tetr. 1. Serm. 2. Cap. 88.*

In every Species of Seeds, Roots, or Juices, also some Indication of the Temperament may be taken from the Colour. For Instance, an Onion, a Squill, and Wine, the whiter they are, the less Heat they have in them; but the deep, or pale Yellow, carry the most Heat. The same is observable in Wheat, Kidney-Beans, and Chiches; as also in the Roots of Iris, Daffodil, and many others; and universally the pale or bright Yellow, and the Russet, are hotter than the White. *Act. Tetr. 1. Serm. 1.*

ALBA TERRA. David Lagneus, in the *Theatrum Chymicum*, Vol. 4. Page 721. tells us, that the Matter of the Philosophers Stone is Quicksilver and Sulphur, and that this Composition is called TERRA ALBA.

ALBA VITILIGO. See VITILIGO.

ALBADARA. It signifies in Arabic the Sesamoide Bone of the first Joint of the great Toe, which is about the Size of a small Pea. Its Use is to that Joint much the same as the Patella is to that of the Knee.

The Magicians are said to attribute extraordinary Virtues to this Bone. Some of the Jewish Rabbies relate strange Stories of a little Bone, which is called *Luz*, and which they say is found betwixt the last Vertebra of the Loins, and the Os Sacrum. As there is no such Bone to be found in that Place, perhaps they may mean this Sesamoide Bone, and may have borrowed some fabulous Accounts of it from the Magicians. They relate, that this Bone is not to be destroyed by either Fire or Water; and that God will make Use of this Bone at the last Day, to raise the Dead, making the Body to grow again from it, as a Plant does from the Seed.

But as there is something very remarkable in this Bone, with Respect to Physic, without recurring to Jewish Fables, and Magic Tales, I shall relate what I have heard and observed on this Subject.

About twenty Years ago, there was a Cure performed by a Physician, who then lived at Oxford, which was much talked of, and, I believe, most Gentlemen of the Profession who studied there, about that Time, may remember it. A young Lady had been subject to frequent Fits of an odd Kind, against which all Remedies which were tried had proved ineffectual. At last, a Physician was consulted, who was of Opinion, that these extraordinary Fits were caused by a Dislocation of the Bone, which is the Subject of this Article, and that an Amputation of the great Toe would cure them. The Lady pursued his Advice, the Toe was cut off, and she recovered perfectly. I neither knew the Lady nor Physician; but the Fact was well known at that Time, and I never heard it disputed. The following Case in which I was concerned is a farther Evidence, that such Cases may, and actually do sometimes happen, though they have been generally overlooked by Medicinal Writers.

In the Summer of 1737, I was called to one Mr. Fitter, a substantial Farmer of Henwood-Hall, near Solihull in Warwickshire. I found him sitting on the Side of his Bed, where he told me he had been all that Day, and the preceding Night, without daring to move, because he was sure of having a Fit, the Moment he moved his Foot, the Apprehensions of which gave him great Terror. He said, that a few Days before, in crossing a Waggon Road in Haste, where the Ruts were deep, and the Sides of them very hard, he stumbled at a Clod, and hurt the great Toe of his left Foot very much; that in a few Minutes he fell into a Fit, and that whenever he moved that Toe, which he never did without a great deal of Pain, he was sure to fall into another of the same Sort. These Fits much re-

fembled those of the Epileptic Kind, except that no Froth was discharged at the Mouth, and that the injured Foot first began to be convulsed, then the Leg, and from thence a very uneasy Sensation ascended to his Head, and then the Convulsions began to be universal.

Upon Examination, I found he had never been subject to any Disorder like Convulsions before. He was at this Time upwards of fifty. Before this Accident, he was in all Appearance a very hearty Man, and had now no Complaints of any Kind, except the above-mentioned.

I do not recollect exactly what I directed for him; but I remember nothing did him the least Service, insomuch that in a Week, or thereabouts, he died, perhaps as much by the Neglect of those about him, as by his Distemper; for, as the Accident happened in the very busiest Time of Harvest, he had not the Attendance which a Case of this Importance merited.

I could never, with all my Intreaties, get Leave to examine the Toe, with the Attention and Exactness it deserved, for he was so excessively afraid of having it touched, or moved, that he was almost in Agonies, whenever I attempted to move my Hand towards it. I should have solicited for Liberty to dissect the Toe, if an Opportunity had presented, but he had been buried some Days, before I heard of his Death.

Hippocrates (*de Morbis Mulierum*, L. 2.) has a most exact Description of the Sort of Fits this Patient was affected with, which he attributes to Hysterics, or, in his Phrase, to the Uterus; this I shall transcribe from him, in order to give a better Idea of this Patient's Case: *Ἡ ἐς τὰ σκίλα τῷ ποδὶ πράπνῃται, γινώσκεις ὧδε. Ὅτι μεγάλῳ δάκτυλῳ τῶν ποδῶν σπῶνται ὑπὸ τῆς ὕψυχας, καὶ ἰδίῃ ἔχει τὰ σκίλα καὶ τὸ μῆρ, καὶ ἔγκνεται καὶ ἐλίσβῃ τὰ ἀμφὶ τὸ μῆρ νῦρα. Ἡ δὲ ἀναυδοὶ γίνῃται ἐξαπίνης, τὰ σκίλα ψυχρὰ ἔσονται ἀν, καὶ τὰ γούνατα καὶ τὰς χεῖρας, καὶ ἡ καρδίη πάλινεται καὶ βρύχει, καὶ ἰδίως πούλες, καὶ τ' ἀλγὰ ὅσα ὑπὸ ἐκ τῆς νύκτος ἐπιλαμβάνει πάσχεσι.*

ALBAGIAZI. The Arabic Name for the Os Sacrum. *Castellus from Fallopius.*

ALBANI. *Rulandus* explains this *Lapis Salis Laeti*, which is not very intelligible. *Johnson*, and *Castellus*, as is usual with them, in Case of Difficulty, take no Notice of it. There is a Kind of Salt to be procured from Milk, which crystallizes in the Form of a Cake, the Discovery of this is attributed to *Ludovicus Testi*. It is possible that this Salt may be meant by *Albani*, and that *Ludovicus Testi* might take the Manner of preparing it from some chymical Author that preceded him.

ALBANUM. Salt of Urine. *Rulandus.*

ALBARA. A Species of Leprosy. *Castellus.* See VITILIGO.

It signifies also the White Poplar. *Brunfelsius.*

ALBARAS. Arsenic. *Rulandus.*

Blancard explains *Albaras alba*, by *Leuce*, the white Leprosy; and *Albaras nigra*, by *Lepa Græcorum*.

ALBATIO, ALBIFICATIO, and DEALBATIO, are alchemical Terms, not easily understood. They seem to mean Reducing the baser Metals to a Whiteness, in order for their Transmutation into some of the more noble Sorts.

They also signify the Calcination of Metals, or Minerals, to a Whiteness, without any View to Alchemy.

ALBEDO. Is the Whiteness procured by Albification, Or Whiteness of any Kind.

In Proportion as the Flesh of Animals alters from its Whiteness, so much it loses of the Goodness of its Juices. *Aetnarius de Spir. Anim. Cap. 7.*

Of Whiteness, with respect to Urine, there are four Kinds, viz. the Crystalline, the Snowy, that of Lime, and the Limpid, like that of fair Water. For Ice, Crystal, Snow, Lime, and Water, have a Whiteness, but not in the highest Degree. The Colour of Milk comes short of the highest Degree of Whiteness, but exceeds the aqueous and crystalline. Then the Whiteness of the glaucous Colour falls as much short of that of Milk, as it exceeds the *χαρμὰς*, *Charopos*: For the Glaucous is perspicuous like a clear Horn, or the Cornea Tunica of the Eye; but the *Charopos* [Latin *Ravus*] is like the whitish Hairs of Camels; or the Colour of the Onyx Stone. *Theoph. de Urinis Cap. 5. Aetnarius de Urinis Cap. 8.*

ALBERAS. The Arabic Name for the *Staphisagria*. *Schroder.*

ALBERICK. *Rulandus* explains this *Album Aëris*. The German Word signifies *White Ore*.

ALBESTON. Quick-Lime. *Rulandus.*

ALBETAD. Galbanum. *Rulandus.*

ALBI. Both *Rulandus* and *Johnson* explain this by *Sublimati*.

ALBIFICATIO. See ALBATIO.

ALBINUM. A Name of the *Gnaphalium marimum*. See CUDWEED OR COTTON-WHEED. See GNAPHALIUM.

ALBIR. Pitch got from the Bark of the Taxus, Yew. *Johnson.*

ALBOR. Urine. *Rulandus.*

ALBORA. A compound Species of Itch, or rather Leprosy, of which *Paracelsus* gives the following Account:

I say that *Albora* is a Complication of three Things, the Morpew, the Serpigo, and the Leprosy.

When

When several Diseases of different Origins meet together in one Center, there is generated a new Disease under a new Name.

THE SIGNS.

When Cicatrices appear in the Face, like the Serpigo, and then turn to small Blisters of the Nature of Morphew, for which there is no Name, I say, the Patient has the *Albora*.

THE TERM.

It terminates, without any Ulceration, in extremely foetid Evacuations from the Mouth and Nostrils. The Distemper is known only by its outward Signs; it takes its Seat too in the Root of the Tongue.

A CAUTION.

Avoid all internal Medicines, and strong corrosive Waters.

THE CURE.

Take of Tin, Lead, Silver, each a Dram; distilled Water of the Whites of Eggs, half a Pint; mix them together. The boiled Whites of Eggs are to be distilled, and the Water put to the Filings of the said Metals, and the *Albora* is to be washed with the same. *Paracelsus de Apostematibus, Cap. 42.*

ALBORCA: *Mercury. Johnson.*

ALBOT. *A Crucible. Rulandus. Johnson.*

ALBOTAT. *Cerusi. Rulandus. Johnson calls it ALBOTAR. It is also called ALFIDAS.*

ALBOTIM. *Turpentine. Rulandus. According to the same Author it is also called ALBOTAI.*

ALBOTIS. The same as TERMINTHUS, which See.

ALBUCASIS. An Arabian Author, known also by the Names of *Albucasis, Albuchasius, Buchasis, Bulcasis Galaf, Alfaharavius, and Azaravius*, according to Fabricius, who places him in the eleventh Century. Hence it appears, that Dr. Friend is not the only Author, nor the first who acknowledged *Alfaharavius* for the same as *Albucasis*. He is esteemed an excellent Surgeon. *Wolf. Juslus* places him about the Year 1085. Dr. Friend says a great deal about his Practice, which does not belong to this Article. What he says, however, concerning his Person, Character, and Writings, I shall insert.

Alfaharavius is an Author never mentioned by any other Arabian Physician, and scarce known in Europe, to any but Matthæus de Gradibus (who died in 1460.) till P. Riccius's Translation of him (a very bad one) appeared in 1519, and this itself never seen by Gesner. The Translator gives him a very great Encomium, and says, he is a very clear Writer, succinct, and at the same Time very comprehensive; and, in his Opinion, inferior to none, except Hippocrates, and his Interpreter, Galen. He compiled a Work, called *Al-Tasrif*, or a *Method of Practice*, divided into thirty-two Treatises, in which he is supposed by some to be excellent for the diagnostic Part, and describing the Symptoms of Diseases. The Book, indeed, is very methodically writ, and, without doubt, deserves a good Character: But then, I must observe, that the greatest Part of this Work is almost exactly the same with what we may read in Rhazes: For Instance, the 26th Tract, about the Distempers incident to Children; the 28th, concerning arthritic Disorders; the 30th, which treats of mortiferous Medicines, are all, in a Manner, transcribed from that Author. More particularly in his Account of the Small-Pox, in the 31st Treatise, he copies almost every Word of what Rhazes had written upon the Pestilence; and so little varies from him, that he retains the very same Divisions, and even Titles of the Chapters: Nay, he mentions the same extraordinary Virtue of a Medicine, which, though nine Pustules are come out, will prevent a tenth; though he describes the Medicine itself a little differently.

In perusing this Author, I observed, that he refers to a Book, which contained the Precepts and Practice of Surgery: This he does very often, particularly p. 80, 81, 88, 97, 99, 107, 117, 118, 120, 123, 124, 125, 127, &c. I compared these Passages with *Albucasis*, as he is commonly called the only Arabian, who has left us any separate Treatise of surgical Operations; and I had the Satisfaction to see, that every Case in Surgery, as mentioned by *Alfaharavius*, was treated of by him. I desired the Favour of Mr. Gagnier, who has very great Skill in the Oriental Languages, to enquire whether the Arabic Original of *Albucasis* could be found in the Bodleian Library. Upon searching, he met with one Manuscript, in Archbishop Marsh's Collection, No. 54. with this Title (translated into Latin thus) *Traclatus x libri Zaharavi dictus operatio manus (id est) Chirurgia & ars medica, circa cauterizationem, & dissectionem & commissionem fracturaram, in tres partes distributus*—but not finding the Name of *Abulcasim* (which is the Name given him in a Latin Manuscript there, by Gerardus Carmonensis, who translated him) he went further, and found another Manuscript amongst Dr. Huntington's, No. 156, with this Title at large—*Pars xi libri Al-Tasrif, Authore Abul-casim*

Chalaf Ebn-Abbas Al-Zaharavi—and, at the End of the Manuscript, were these Words translated out of Arabic thus, *Explicit hic Tractatus de Chirurgia, estque conclusio totius libri Practices medicine cujus Author est Abul-casim, &c. Die primo mensis Safar, A. H. 807.* and, in the Latin Manuscript already mentioned of Gerardus, it is called *Particula 30 libri Albucasim*. The joint Authority of these two Manuscripts, concurring with what I have observed before, about the References to a Treatise of Surgery, puts it, I think, beyond all Dispute, that what we have now under the Name of *Alfaharavius*, and *Albucasis*, were writ by the same Person. Add to this, that *Albucasis* often refers to a Book, which he had writ concerning the Practice of Physic.

I do not find any Certainty of this Author's Age; but he is generally (though for what Reason I do not apprehend) supposed to have lived about the Year 1085: But there is some Ground to think he was not so antient. For, in treating of Wounds, he describes the Arrows of the Turks: A Nation which scarce made any Figure, till the Middle, at least, of the twelfth Century. And from what he says, that Surgery, in his Time, was in a Manner extinct, so that scarce any Footstep of the Art remained: One may, I think, infer, that he lived long after Avicenna; for, in that Physician's Time, we know, Surgery was in good Repute. *Albucasis* revived it; and thinks it is the highest Impudence to attempt any Thing in it, without being well versed in Anatomy, and in the Virtues of Medicines, especially the former, and adjures all of this Profession never to undertake, for the Sake of Gain, a Case which they do not understand. Though he takes a great deal from the Greeks, and especially from Aetius and Paulus, yet of the practical Writers he mentions only Hippocrates and Galen: And this, by the Way, may be another Reason to make us believe, that he is the same Person with *Alfaharavius*, who, in like Manner in his practical Work, does not quote above four or five Authors, viz. Rhazes, Honain, &c. besides these two. He throws by, he says, all that is superfluous in Surgery, and retains only what is useful, and necessary: And acquaints us, that he had joined long Reading and Experience together, and protests he will relate nothing but what he has seen. He is to be commended particularly for this, that he is the only one among the Antients, who has described the Instruments in each Operation, and explained the Use of them; and the Figures of these Instruments are in both the Arabic Manuscripts which I have named, though not so finely and elegantly drawn, as in the Latin Copy. Another Thing very remarkable and indeed, peculiar to himself, is, that he gives his Reader Warning, wherever there is any Danger in the Operation: A Caution many Times as useful, as the long and minute Directions of others, how to perform it.

A Translation of *Albucasis*, intitled, *Methodus medendi certa, clara, & brevis, pleraque, quæ ad Medicine partes omnes, præcipue quæ ad Chirurgiam requiruntur, Lib. 3. exponens, cum Instrumentis ad omnes serè Morbos utiliter & quædam depictis*, was published, together with some other Authors, at Basil, 1541, in Folio.

Albucasis was also published in Latin at Venice, 1500, in Folio. And at Strasburgh, 1532, in Folio. *Pander Linden.*

ALBUGINEA TUNICA OCULORUM. The Coat of the Eye called *Adnata*, or *Conjunctiva*. See ADNATA.

A Coat of the Testicles is also called ALBUGINEA. It is so called from its Colour, which is white. It is a strong, thick Membrane, very smooth on the outward Surface; the inward, which adheres to the Substance of the Testicle, is rough and uneven. Into the upper Part of this Membrane are inserted the Blood-vessels, Nerves, and Lymphatics, which send from thence divers Branches into the Substance of the Testicle. *Drake.*

ALBUGINEUS HUMOR OCULI. The aqueous Humour of the Eye. See AQUEUS HUMOR.

ALBUGO OCULORUM. A Pearl or white Speck in the Eye.

Nitre finely powdered, and mixed with Oil, soon takes away Pearls from the Eye anointed with it. The Juice of Anemone has the same Effect, by its attenuating Virtue. *Oribasius de Lor. offic. Lib. 4. Cap. 24.*

The Collyrium of Archigenes, which at the first Anointing takes off most Part of the Pearl or Speck in the Eye, and is also an excellent Remedy for a bleared or blood-shot Eye, though long and dangerously affected.

Take of Snails calcined, three Drams; *Asa ustum*, four Drams; Squama æris, six Drams; Squama ferri Stomatitis, twelve Drams; *Albugo*, six Drams; Lapis Scissilis, one Dram; Aloes, one Dram; Osmacium dried, two Drams; Indian Thorn, four Drams; Chalcitis, Myrrh, Frankincense, each three Drams; Cortex thuris, Saffron, Crocomagma, each two Drams; Spikenard, three Drams; the Flowers of Pomegranate, two Drams; Gum Arabic, eight Drams. Bruise them in Water, and make

make them into a Collyrium, which use with Water ; or you may bruise the Collyrium, and use it dry. *Actius, Tetrab. 2. Serm. 3. Cap. 39.*

All Cicatrices appear white in the Black of the Eye, for, the Cornea Tunica being thickened, the cærulean Colour cannot appear through it ; the most eminent Parts of the said Tunica turn white, the even Parts are less white, and those which subside, are, in a manner, of the same Colour with the Black. Those Parts which have been treated with astringent Medicines, 'till the forming of a Cicatrix, are darker than the rest, because the Pellicles are much thickened by Adstriction. Now though old, callous, and thick Cicatrices, or Albugines, ought not to be meddled with, because, in such Cases, it is necessary to use Collyria that are of a very acrid Quality, which may endanger an Ulceration of other Parts of the Eye, we shall however describe some of those Medicines that have the Virtue of dying those *Albugines*, or white Cicatrices, of another Colour. For this End keep the Powder of Galls by you, and, upon Occasion, heat the blunt End of a Probe, and, taking up some of the Medicine upon it, apply it to the *Albugo*, and after that some Vitriol diluted in Water : Or apply the Powder of Malicorium, and then the Vitriol as before. Another Medicine from *Oribasius de Loc. Lib. 4. Cap. 24.* quoted by *Ætius*.

Take the Pulp of a sweet Pomegranate, and beat it well, adding now and then a little Water, and, after you have used this about the Eye for some Time, anoint the Place with the Juice of Henbane for fifteen Days together ; this will take off the Colour of the *Albugines*, and with often using, in a Year's Time, leave no Sign of them. *Actius, Tetrab. 2. Serm. 3. Cap. 37. & 40.*

Cicatrices in the Superficies of the Eye, are only so called by some, others call them *Nubeculae* [little Clouds,] and those that are deeper seated, *Albugines*. The Juice of Anemone, or the lesser Centaury, takes off the *Nubeculae* ; the more inveterate, are attenuated and dissolved by Oil of Cedar, and Copper beaten in Water, and used as a Collyrium ; and by all deterfive Collyria. For *Albugines*, Nitre finely powdered, and mixed with old Oil, is a fine Detergent, and so is the calcined Shell of the Cuttle-Fish, beaten up with Honey. Among the Collyria, the following is a good mild Deterfive :

Take of Mamera (*the Root of an Herb, supposed by the Commentator on Myrsus, to be Doronicum*) Gum Ammoniac, Myrrh, Crocodiles Dung, equal Quantities, and make them into a Collyrium : Or, take the Dung of the Land Crocodile, and beat it in Water for a Collyrium. *Æginet. Lib. 3. Cap. 22. Actuarius, Lib. 2. Cap. 7.*

For the *Albugines*, Take Saffron and Pepper, of each equal Quantities, and, with a Cat's Gall, make them into a Collyrium. *Actuarius de Med. Med. Lib. 6. Cap. 5.*

Take a Fox, and cut out his Tongue, and then let him go ; dry the Tongue, and hang it by a scarlet Ribbon about the Neck of the Patient. *Marcel. Empir. Cap. 8.*

For the *Albugines* of Infants, caused by their Crying, anoint them with the Juice of the Solanum Nigrum, *Black Nightshade*. *Actius Tetr. 1. Serm. 4. Cap. 11.*

ALBUHAR. *Cerufs. Rulandus.*

ALBULA. The same as ALBUGO.

ALBULA is also the Name of a Fish in the Lake of Zurich, mentioned by Aldrovandus, and said to be very good Food.

ALBULA. A little Pearl. *Rulandus.*

ALBULAE AQUAE, or ALBÆ, according to Cælius Aurelianus. These were much celebrated amongst the Antients for their medicinal Virtues.

The Waters called *Albæ*, or *Albulæ*, in Italy, were approved by the antient Physicians in Palsies and Fluxes, and other like Disorders affecting the natural Functions, because of their cooling Quality. *Cælius Aurelianus, Chron. Lib. 2. Cap. 1.*

Aluminous Waters, such as those they call *Albulæ* in Italy, are good for all Kinds of Ulcers, but especially such as are subject to a Flux of Humours, by speedily drying them up, and by that Means effecting a Cure. *Galen. de Simp. Med. Lib. 1. Cap. 7. 50.*

Galen, in his *Method. Med. Lib. 8. Cap. 2.* gives the History of a Cure he performed on a Man who contracted a Fever by bathing in the aluminous Waters called *Albulæ* ; which stopping all the Pores occasioned that Disorder.

The *Albulæ Aquæ* are recommended by Archigenes, in *Actius*, for Ulcers of the Bladder, to be drank after Walking in the Morning, three half Pints the first Day, and then to go on to five or six ; for, besides their washing the Intestines, their fuliginous Vapour blunts the Sense of Pain in the Part, and, making a Separation of the Humours, renders the Blood more pure and florid ; and they also cleanse the Ulcer effectually, and give an agreeable Sensation at their Entrance into the Bladder. So that, in short, nothing can more contribute to the Cure of the Patient. They are fittest to be drank after the Cool of the Morning. *Actius, Tetr. 3. Serm. 3. Cap. 30.*

Actius says, these Waters are sulphureous, aluminous, and warm as new Milk. *Ib.*

ALBUM GRÆCUM. The white Dung of Dogs gathered in March, called also *Spodium Græcorum*, *Nihil Album*, and *Album Canis*. It is esteemed drying, abstergent, discutient, and aperient. It is said to promote the Breaking of Abscesses ; and to deterge Exulcerations ; hence it becomes useful in Dysenteries, and Colical Pains. It is applied externally to the Throat in Quinsies, generally mixed with Honey, and to malignant Ulcers. It mollifies hard Tumors, draws away the Water in a Dropsy, and cures Warts. *Dale.*

ALBUM HISPANICUM. *Spanish White*, called also *Bianca Alexandrina*, *feu Album Hispaniæ*. This is made from Tin in the same Manner that Cerufs is prepared from Lead. It is only used as a Paint, being thought to make the Skin look white. *Dale.*

ALBUM OLUS. A Name of the *Lactuca Agnina*, Lambs Lettuce, or Corn Sallet. *Dale.*

ALBUM NIGRUM. *Mouse-dung*. See *Mus*.

ALBUM OCULI. *The White of the Eye*.

Things preternatural, among which are oftentimes Hairs, growing in the White of the Eye, which cause no Pain, and differ not much in Colour from the natural, are cured by taking hold of, and raising them with the Hook, and then cutting them off with the Knife appointed for the Pterygia ; after which a little fine Salt is applied, and a Lock of Wool bound on the Place, and the Management is the same as in the Cutting of the Pterygia. But Things that put on a reddish Aspect, and appear humid, and with turgid Veins, that are painful, and affect the Temple by Consent of Parts, are better let alone by the Surgeon, as being of a malignant Nature, full of Hazard, and endangering the Loss of the Eye itself. *Act. Tetr. 2. Serm. 3. Cap. 57.*

ALBUM JUS. *White Broth*, good for sick People, is thus prepared : Boil Whiting, Haddock, Cod, or any such white-grained Fish, in Plenty of Water, with a sufficient Quantity of Oil, and add some Anis, and Leeks ; when they are parboiled, put in a little Salt, just enough to give a Taste. *Oribasius, Med. Col. Lib. 2. Cap. 51.*

ALBUM is also a Name of many compound Medicines, as,

ALBUM SEVERI COLLYRIUM. *The White Collyrium of Severus*, much recommended by *Actius*, is prepared of the Juice of Fenugreek, Cadmia, Cerufs, and Gum Tragacanth. *Actius, Tetr. 2. Serm. 3. Cap. 102.*

ALBUM UNGUENTUM. This is commonly called *Unguentum Album Rhafis*, and is thus ordered in the College Dispensatory :

Take of Oil of Roses nine Ounces ; of Cerufs carefully washed in Rose-water, and powdered, three Ounces ; of white Wax two Ounces. After the Wax is melted in the Oil, sift in the Cerufs after it hath been well dried from its Washing, first in common, and then in Rose-water, so that, together, they may be made into an Ointment, S. A. To which add two Drams of Camphire, rubbed with a few Drops of Oil of Almonds, and then it is called the *Camphorated white Ointment*.

There is a very different Ointment in the *Pharmacopæia Regia*, under the same Title, and which too is ordered at Pleasure to be camphorated : But that hath not been thought worth any one's Prescription, since Avicen likewise directs one under the same Name, which the Augustane Dispensatory hath got, wherein Litharge is made an Ingredient, and the White of Eggs beat into it ; but that also now is quite laid aside. That which is here retained is attributed to Rhases, whose Compositions are generally more uniform, and simple, than any of the Arabians. But our wholesale Dealers in Medicine, have learned grievously to corrupt it, by using Hog's Lard, for the Oil of Roses, and Wax, which greatly frustrates the Intention of the Medicine as a Cooler ; insomuch, that it may not be unworthy the particular Care of a Prescriber, to enquire into this Matter, when any Stress is laid upon this Medicine, which is the most commonly used of any of this Intention. *Quincy's Notes.*

The *Unguentum Album*, of the *Edinburgh Dispensatory*, is something different from the preceding.

Take of unripe Oil Olive three Pints ; of Cerufs, a Pound ; of white Wax, nine Ounces ; and mix them together according to Art, so as to make an Unguent.

ALBUMOR is also sometimes used to signify the same as ALBUMEN, *The White of an Egg*.

ALBUMEN. *The White of an Egg*.

As the White of the Egg supplies the Fœtus of Birds with its first Nourishment, and bears a great Analogy to the Serum of the Blood, it becomes a Matter of some Importance to be well acquainted with its Nature.

The *Albumen*, says Fabricius, called the *Ovi Albus Liquor* by Pliny ; *Ovi Candidum*, by Celsus ; *Ovi Albor*, by Palladius ; *Ovi Album*, and *Albamentum*, by Apicius ; by Aristotle, *λευκωμα* ; by Anaxagoras, *ἰσθὺς γάλα*, the Milk of Birds. It is a cold,

a cold, viscous, white Liquor of the Egg, differing in Consistence, for towards the acute and obtuse Parts of the Egg, it is more liquid, in other Parts of a more dense Consistence, and likewise in Distribution, being more copious towards the obtuse, than towards the acute Part of the Egg, and more copious in this last, than in the other Parts of the Egg, surrounding and covering the Vitellus, or Yolk, on all Sides.

I have not only observed this Difference in the *Albumen* of an Egg, but also that there are two *Albumens* different from each other, and involved in their proper Membranes: Of these, one is very thin and liquid, the other more dense and viscous, and of a somewhat whiter Colour; but in old and stale Eggs, after some Days Incubation, inclining to a Yellow. As this second *Albumen* covers the Vitellus or Yolk on all Sides, so it is itself surrounded by the other external Liquid. That these two *Albumina* are distinct, will thus appear: If you take off the Shell, and penetrate both the adjacent Membranes, you will see the Liquid and exterior *Albumen* immediately all run out; but though these Membranes are opened, and reclined on each Side upon the Dish, yet the interior and denser *Albumen* will keep its Place and globous Figure, as being circumscribed within its proper Membrane, which is so fine, as not to be discerned by the naked Eye. If you cut this Membrane, the second *Albumen* will instantly fly out on all Sides, and lose its round Figure, just as when you cut a Bladder the contained Liquor bursts out on a sudden; and when you break the Membrane that holds the Vitellus, the yellow Liquor runs out, and its former Globosity subsides. *Harvæus de Generat. Animal. Exercit. 11.*

As the Eggs of Hens consist of two Liquors, each of a different Colour, separated from one another by Membranes, and distinguished by two Branches of umbilical Veins, one of which goes to the Vitellus, and the other to the *Albumen*, so it is very probable they are of different Natures, and consequently, appointed for different Purposes: "The Vitellus of the Egg," says Aristotle, differs from the *Albumen*, not only in Colour, "but in other Properties. The Vitellus is condensed by Cold, the *Albumen* is rather liquefied. On the contrary, the *Albumen* is condensed by Fire, the Vitellus retains its Softness, if it be not burnt; and concretes, and dries, more in boiling, than in roasting." When the Vitellus grows warm with Incubation, it becomes more humid, and like melting Wax, or Fat, whence it takes up more Space; for, as the Fœtus increases, the *Albumen* insensibly wastes away, and condenses; the Vitellus, on the contrary, seems to have lost little or nothing of its Bulk, when the Fœtus is perfected, and only appears more liquid and humid, when the Abdomen of the Fœtus begins to be formed.

The Chick in the Egg is first nourished by the *Albumen*, and, when this is consumed, by the Vitellus, as with Milk. Therefore the umbilical Process of Veins that goes to the *Albumen*, when that is spent, withers, and breaks off before the Birth, leaving no Sign behind it, but vanishing even before the lower Belly comes to be bounded with an Abdomen.

Both the *Albumina*, are designed for Nutrition, and the outer one is first consumed, as being the first that receives the umbilical Branch of Veins, that visit the *Albumina* before they enter the Vitellus, which is the last Nourishment of the Chick. *Harvæus de Generat. Animal. Exercit. 59.*

The *Albumen* is contained in concentric Membranes, but is not all of the same Consistence; for the exterior Part of it is thin, and diffuses itself almost like Water, when the Membranes are broke, whereas its interior Part is more viscous.

It can make its Way through the Shell, as it appears from its Wasting by keeping, especially if it is exposed to a gentle Heat.

It is specifically lighter than the Vitellus.

By Incubation, the *Albumen* becomes thinner, and more turbid, especially on its upper Part, near the obtuse End, where it is also first consumed; and it is afterwards diminished towards the sharp End of the Egg, till at last nothing of it is left, except a white cretaceous Substance at the lower Part of the Shell.

The *Albumen* of a fecundated Egg is as sweet and free from Corruption, during all the Time of Incubation, as it is in a new-laid Egg. *Edinburgh Medical Essays.*

Boerhaave has given some Experiments on the White of an Egg, and immediately afterwards, nearly the same Experiments on the Serum of Blood, with a View of shewing the Similitude there is betwixt the two Substances just mentioned. These I shall insert in this Place, as they will contribute much to our Information, with respect to many Things relative, not only to the Whites of Eggs, but also to the Effects of Heat upon nutritious Juices.

EXPERIMENTS upon the WHITES of EGGS, in order to prove them neither ALKALINE, ACID, nor in any Degree ACRIMONIOUS.

Put some Whites of new-laid Eggs, well cleared from their Shells, Membranes, and Yolks, into clean glass Vessels. Into each of these pour different Acids, then shake and mix them

well together, and there will not in any of them appear the least Sign of an Effervescence. Put into another Glass, wherein is a Portion of the same Whites of Eggs, a fixed, and into another a volatile Alkali, and you will find them continue perfectly at Rest, without discovering the least Tendency to Ebullition.

If the fresh Whites of Eggs are put into a Cucurbit, and distilled with a Heat of a hundred Degrees, an insipid Water comes over, which contains nothing in the least spirituous. If these Whites of Eggs are applied to the Eye; or the bare Nerves; they do not excite the least Degree of Pain; they scarcely affect the Organs of Smell; applied to the Tongue, they taste perfectly insipid, and inert, and to the Touch they feel viscid, and mucous, without the least Indication of Activity.

REMARKS.

Hence it is evident, that in the fresh White of an Egg, neither an Alkali, nor an Acid exists, nor any Thing formed by a Combination of these two together. But it is a thick, viscid Liquid, utterly inert, and perfectly insipid. It appears, however, that by this truly animal Fluid, within the Space of twenty-one Days, and in a Heat of ninety-three Degrees, a Chicken is formed by Incubation under the Hen, which weighs more than an Ounce, and this from a Body so small, that it scarcely weighs the hundredth Part of a Grain. Here then we find a Fluid different from all others, out of which, by the Application of requisite Causes, Fibres, Membranes, Vessels, Viscera, Muscles, Bones, Cartilages, all the Parts both tendinous, and ligamentous, the Beak, Claws, and Feathers, and all the Humours contained in all these are produced. And yet in this Liquid we find a Softness and Inactivity, without the least Appearance of any Thing either acid, alkaline, or spirituous, or any Disposition to an Effervescence. And indeed, if there should happen any Effervescence, the Egg must unavoidably burst. The whole Substance therefore consists of such a Matter as has been described, and demonstrates to us from how tenacious and inactive a Mass all the Parts of the Chicken; both solid and fluid, may be formed. And yet this very Substance, by a somewhat greater Degree of Heat, is rendered absolutely unfit for the Production of a Chicken, it scarcely bearing a hundred Degrees to any good Purpose, whilst a little less proves equally prejudicial, fewer than eighty Degrees not being sufficient.

The ingenious Malpighi has demonstrated, that this White of the Egg is not a Liquid every where equally fluid, like the Serum of the Blood, which circulates through the Vessels of the Body, but that it is a Substance composed of many membranous Bags which are distinct, and filled with their proper Fluids almost in the same Manner as we observe the vitreous Humour of the Eye to be formed. And hence those Waves, as it were, concentric to the Sacculus Colliquamenti, by which the nutritious Juice being gradually attenuated, is at last strained into the Amnios of the Chicken.

EXPERIMENT tending to shew the ANALOGY betwixt the SERUM of the BLOOD, and the WHITE of an EGG.

If Blood, drawn with a free Stream from a young Person in Health, whilst fasting, is immediately set to rest in a clean Vessel, it soon spontaneously separates into two Parts, a concreted solid Cake, and a fluid, yellowish, thin Serum, which perpetually increases for a considerable Time, whilst the Mass remains without Motion. Let this Serum be separated from the red concreted Part as accurately as is possible, and divide it into separate clean Vessels. Into one Portion of it pour some of the strongest Vinegar; into another Spirit of Salt; into a third Spirit of Nitre; and into a fourth Oil of Vitriol; and you will observe that neither of the Mixtures discover the least Effervescence.

To a Portion of Serum in another Vessel add a fixed Alkali, and to another a volatile Alkali; and the Consequence will be, that in both Cases they will remain perfectly at Rest, without the least Conflict, or Appearance of Ebullition.

This Serum has a Taste, which is mild, and but very little inclinable to Saltiness. It diffuses a Smell which is disagreeable, but by no Means acrid or very active. If a Drop of it is instilled warm into the Eye, it excites no painful Sensation, but is one of the most speedy Lenients in Inflammations and Wounds of that Part. And if it is applied to the Nerves laid bare in Ulcers, or Wounds, it is scarcely perceived.

REMARKS.

This plastic Serum is soft and inert, perfectly like the White of an Egg; and as out of that are formed all the Parts of a Chicken, so this furnishes all the Parts of the human Body with Nutriment.

EXPERIMENTS on the WHITES of EGGS with HOT WATER.

If an Egg is exposed to a continual Heat of eighty Degrees, the White soon loses its Tenacity and Thickness, and becomes so subtle as to perspire through the great End, where the Membranes being separated from the Shell, are depressed towards the

F I I

Yolk,

Yolk, and form a large Cavity. The other Part of the White at the same Time will be dissolved, grow thin, and ichorous, nor will it afterwards harden with the Heat of boiling Water, but becomes foetid, putrid, and very acrid, and destroys the vital Stamina of the Chicken.

The fresh White of an Egg thrown into Water heated to a hundred and sixty Degrees, loses its Pellucidity, grows white and opake, and becomes concreted into one thick, scissile Mass. Or if into Water boiling in a glass Urinal you drop a little White, it will be coagulated surprisngly, even during the Motion of the boiling Fluid, though it is agitated about by it to every Side. Or, lastly, if you put a whole Egg into Water as hot, it will be hardened in the same Manner. Hence therefore it appears, that this Coagulation does not arise from any Loss of the Liquid of the White, dissipated by this Heat, but from the true Action of the Fire applied in such a Degree; for it happens in the Middle of the Water. And if you put the White into a large Quantity of cold Water, it will harden and separate itself from the Water as soon as it begins to be near boiling.

If an Egg is boiled till it is very hard, and you then accurately separate the White from the Membranes, Tread, Yolk, and Sacculus Colliquamenti, and lay it in a glazed Bason, it begins gradually to sweat, as it were, and to be resolved into a subtile Liquid, which appears of a watery Nature, but is a most penetrating Solvent, insinuating itself into the Body of Myrrh and other Substances, that are otherwise dissolved with Difficulty.

REMARKS.

By this Experiment then we learn, how that Matter is disposed with Regard to Heat, out of which all the animal Parts without Exception may be formed in a short Space of Time. We see here that a certain Degree of Heat dissolves it, that a greater coagulates it, and that a less again resolves it, when it is coagulated. All these Things therefore are owing to determined Degrees of Heat, without a proper Regard to which nothing can be asserted that will always here hold true. And it will appear still farther, that a Heat exceeding two hundred twenty-four Degrees will attenuate and dissolve this Coagulation brought about by a less Heat. Hence, therefore, let us be warned to conclude more cautiously concerning the dissolving or coagulating Power of Fire with Regard to plastic, nutritious Humours, or the Degrees of Heat necessary to attenuate, putrefy, inspissate, or again resolve them.

EXPERIMENTS on the SERUM of the BLOOD with HOT WATER.

Pour Serum of the Blood into clean Water, boiling on the Fire, it immediately grows white, and a Kind of Coagulation is formed in the Middle of the Water. In this Property, therefore, Serum agrees with the White of an Egg, though it must be observed, that the White of an Egg forms a more solid Coagulation than the Serum of the Blood.

REMARKS.

Hence then the Effects of Heat upon Serum of the Blood are manifest; hence also we may learn how boiling Water acts upon the Humours when it is applied to, and consequently burns the Parts of a living Body. It is plain, that by that Means neither the saline Parts, nor the Oils of the Blood are rendered volatile.

EXAMINATION of the SERUM of the BLOOD with a DRY HEAT.

Take some Serum of Blood, put it into a clean Vessel, and gradually expose it to the Fire, and when it begins to smoke, that Part which is in Contact with the Vessel, will grow opake and white, and coagulate; and thus proceeding successively, the whole Serum will at last be hardened into a white, tenacious, opake, scissile Mass, lying in Waves, as it were, in the Middle of the Surface, perfectly solid, of a mild Taste, like that of the White of a boiled Egg, and almost without Smell. If this Mass is kept in the open Air, a thin watery Liquid gradually exudes, perfectly in the same Manner again, as it happens in the boiled White of an Egg. And here, if the Coagulation is made with a proper Degree of Fire, that is, with such a one as will just effect it, and no more, it will then harden without any Empyreuma, without expelling any Salt, and without the least Appearance of an Alkali. When it is once consolidated in this Manner, it can scarcely be by any other Means resolved.

REMARKS.

Hence it appears, that in a certain Degree of Heat, not much exceeding a hundred, all our Humours will be reduced into Masses, that will not be able to pass through their Vessels. A Heat, therefore, of a little above a hundred Degrees, arising either from an internal or external Cause, cannot be supported in the human Body, because it would utterly stop the Circulation of the Humours, and consequently cause immediate Death. And

the Effects of such a Heat would be first sensible in the Head and Lungs, because their proper Actions would be first disturbed.

EXAMINATION of the WHITE of an EGG with ALCOHOL.

Put the White of an Egg into a transparent Vessel, upon which pour some of the purest Alcohol of Wine, in such a Manner that it runs very gently down the Sides upon the White; and this do very carefully, that you may evidently perceive that every Part of the Surface becomes coagulated, as the Alcohol touches it, whilst the lower Part still continues liquid and pellucid. Then shake them gently together, the Coagulation still spreads with the Alcohol; and by shaking them thoroughly, and mixing them well together, the White is intirely coagulated. If the Alcohol is heated before the Experiment is made, the Coagulation is effected in a greater Degree, and the same Effect is produced, by shaking the *Albumen*, and Alcohol together with Rapidity, the Heat and Motion here promoting the Coagulation.

REMARKS.

Hence it appears, that the purest vegetable Spirits coagulate that plastic Matter which is the Basis of Nutrition; and certainly in that Instant of Time it becomes absolutely unfit to perform its Office. This Admixture, however, of Alcohol preserves the White from Putrefaction. How much then does the plastic Matter of Animals tend towards Coagulation? What unexpected Powers does the too great Depuration of some Bodies produce in them? Wine will suffer itself to be mixed with this White; the Alcohol produced from it becomes coagulated with the coagulated White; and yet Alcohol diluted with a pretty deal of Water will not coagulate it.

EXAMINATION of the SERUM of the BLOOD with ALCOHOL.

To Serum, contained in a transparent Glass, pour some very pure cold Alcohol, and immediately, in those Parts which it touches, the Serum begins to grow turbid, white, and opake. Shake them together, the same Thing happens throughout, and the Whole becomes coagulated, though not so strongly as the White of an Egg, but in Pieces, cohering less firmly together. If Alcohol is mixed with it very hot, the Coagulation becomes much more solid. When the Serum is coagulated in this Manner by Alcohol, it will never grow putrid, but may be kept for Years without Alteration.

REMARKS.

Here then we observe a farther Analogy betwixt the Serum of our Blood, and the White of an Egg; that is, in their Coagulation by Alcohol. That the Serum is not consolidated by the Alcohol into so dense a Mass as the White of an Egg, seems to be owing to the original greater Solidity of the White. For the White which contains all the Matter of Nourishment which is conveyed to the Chicken, so long as it continues inclosed in the Shell, has nothing putrid in it, nor is it much diluted; whereas the Serum of the Blood contains both urinous Particles, and a large Portion of Water; but Alcohol, diluted with Water, will not condense the Serum in such a Manner, nor even the White of an Egg. Hence we may learn the Efficacy of pure Alcohol upon our Blood, for it condenses it like Fire, and preserves it from a spontaneous Corruption, on both which Accounts it is the most ready Styptic we are acquainted with, at the same Time that it prevents Putrefaction, producing a very thin, indeed, but solid Eschar. For if a Tent dipped in the purest Alcohol made scalding hot, is applied to a bleeding Wound, pressed on pretty strongly, covered with a Piece of Hogs-Bladder softened with Oil, and then secured with a proper Bandage, the Hæmorrhage will be immediately stopped, and the whole Dressing may be kept on for the Space of three Days, in which Time the Vessels generally coalesce, being very much contracted and consolidated by the Alcohol. Thus then does Alcohol coagulate all our thicker Fluids, contract the fibrous Parts into a hard dry Coalition, and defend both of them from the Putrefaction they are naturally disposed to. A famous Instance of this is communicated by that excellent Physician, Samuel Cabellian, in a Leg that was perfectly sphacelated, which by the Help of Spirit of Turpentine, and alcoholified Spirits of Juniper, was preserved from Extirpation for the Space of six Months, without any farther Putrefaction. *Eph. Germ. Dec. 3. An. 5 and 6. p. 495.* But those Parts of the Body that are composed of exceeding fine Vessels, soon grow hard in Alcohol, together with their contained Humours. No Wonder therefore, that those poor Wretches who use this Alcohol, though somewhat diluted, too freely, should be obnoxious to such terrible Disorders of the Nerves, and Polypuses in the Blood.

The fresh WHITES of EGGS resolved by DISTILLATION.

Boil some new-laid Eggs in clean Water, till they are hard, and then accurately separate the Whites, and chop them to Pieces. Put these into a clean glass Cucurbit, and sitting on an Alembic

Alembic apply a Receiver. Place the whole Cucurbit in a Bath of Water, and urge it by successive Degrees, till the Water in the Bath keeps constantly boiling. By this Means there do not appear any Streaks like those of Spirits, but there comes off a simple Water discovering itself in dewy Drops, and that in such an incredible Quantity, as to rise to nine Tenths of the whole Weight of the original Mass. Continue patiently this Distillation with the Heat of boiling Water, till not a Drop more of this Liquor will rise. This Water then, upon Examination, discovers no Sign of any Oil, Salt, or Spirits in it. It is very pellucid and insipid, except that towards the latter End it tastes a little bitterish, and is almost inodorous, except that at last it smells a little empyreumatical. Nor does there appear the least Sign of any Alkali, though examined by proper Experiments; nor by any Trial does it discover an Acid. A very small Quantity, in Proportion to what was put in, remains at the Bottom of the Cucurbit, each Fragment being contracted into a small Bulk from their former Magnitude; and they are of a golden Colour, especially in those Parts which were in Contact with the Glass, but yet they are transparent, like stained Glass. When taken out of the Cucurbit, they appear to be light, hard, and perfectly brittle, so that they break with a Noise like Glass, and have a slight empyreumatical Smell, and a bitterish Taste, occasioned by the Fire, but are by no Means either alkaline or acid.

Fill a glass Retort one Third full with the Fragments above-mentioned, apply a large Receiver, place the Retort in a Sand-heat, carefully lute the Joint, and then distil with successive Degrees of Fire to the very greatest, called a suppressing Heat. By this Means a pinguous, oily Spirit arises, which runs down in Streaks, and at the same Time a volatile Salt fixes itself to the Sides of the Receiver, considerable in Quantity, with Regard to the dried Fragments, but little in Comparison of the whole Whites before the Water was drawn off. Last of all, besides a light gold-coloured Oil, mixed with the former Parts, there comes over a black, thick, pitchy Oil; and when this last Oil is forced out by the extreme Torture of the Fire, then the Earth at the Bottom of the Retort, still intimately united with its ultimate, exceeding tenacious Oil, rarefies, puffs up, and rises to the Neck of the Retort, and, if it happens to be filled too full, enters into the Neck, and chokes it up, and hence has sometimes caused the Vessels to burst, not without Danger to the Operator. Continue the Operation till nothing more comes over. The first oily, pinguous Spirit appears strongly alkaline, by every Mark; thus, upon being mixed with an Acid, it causes a very violent Effervescence. By Rectification it is resolved into a volatile alkaline Salt, an Oil, and an inert foetid Water. The Salt that adheres to the Sides, is perfectly alkaline, very acrid, fiery, oily, and volatile, and the last Oil is acrid, caustic, and remarkably foetid. The Earth that remains at the Bottom of the Retort, is exceeding black, shining, light, rare, and brittle, and has a foetid Smell from the empyreumatical Oil that is united with it, and a bitter Taste from the same. If this is burnt in an open Fire, it leaves a little fixed, white, insipid, inodorous Earth, from which no Salt can be procured, exhibiting only an exceeding subtle Powder.

REMARKS.

Hence it is evident, that the White of an Egg contains a very large Proportion of Water, but that it has in it not the least Portion of an Alkali, which will rise even with a Heat of two hundred and twelve Degrees. That Matter therefore, which by a greater Degree of Heat is converted into a volatile Alkali, is not by one of two hundred and twelve Degrees, though very considerable, disposed either to be alkaline or volatile. Hence therefore it may be inferred, that there is no volatile Salt naturally contained in it; for, in Chymistry, that is called a volatile Salt which is more so than Water, and rises with a much less Degree of Fire. Nor do we discover any Spirit, that rises with the Heat of boiling Water; nor any Oil that suffers itself to be separated by the same; nor indeed is the Residuum, after the watery Part is drawn off, so altered by this Action of the Fire, as to give the least Indication of its containing any Salt; but, the more liquid Parts being expelled, it spontaneously acquires the Appearance of a brittle Glass. By this Experiment therefore, we learn, that a volatile Salt may be produced from the White of an Egg, but does not naturally exist there in that Form; for when this Salt is, by a proper Degree of Fire, separated from the rest of the Mass, and become volatile, it will then rise with a Heat of sixty Degrees, though it was not to be raised before by one of three hundred. That Volatility therefore is not natural to the Salt of the *Albumen*, but is communicated to it by Fire; and this is true also with Respect to its alkaline Quality. And hence we discover, the tenacious Adhesion of the Oil to the more fixed Parts of the White, whilst the Water is separated from them very easily; and we also see, that an animal Coal will never part with all its Oil in a close Vessel, but that it adheres so obstinately to the terrestrial Elements, that no Fire, except in the open Air, can destroy the Union. From what has been said then, we may be en-

abled to form just Notions concerning this Matter of the White of an Egg, from which all the Parts of the Animal are afterwards produced.

PUTREFACTION of the WHITES of EGGS.

Sound Eggs, or their Whites, when kept in a Heat of seventy Degrees, or upwards, begin in a few Days to be attenuated, grow foetid, dissolve, and putrefy, and at the same Time, if the Eggs are whole, they begin to grow empty about the large End, and, if they are then boiled, will not harden, but retain their Fluidity. And this Change happens much sooner in those Eggs which are impregnated, than in those which are not; for in these the greatest Part of the putrid Moisture exhales, so that at last the whole Shell almost is filled only with Wind or Air. If you continue to keep the Eggs or Whites in the same Degree of Heat, at last all the Parts grow surprisingly putrid, and alkaline, cause an Effervescence with Acids, and, in Distillation the first Part that rises from them is an alkaline Spirit, and an alkaline Salt, exactly in the same Manner as in putrefied Urine. If the White is suffered to putrefy in the open Air, it becomes almost totally volatile, exhaling in Proportion as the Putrefaction advances, and at last leaving nothing behind but a few Skins, all the rest being dissipated into the Air. In all these Experiments there is never generated the least Portion of Acid.

REMARKS.

If a little Quantity of Egg, putrefied to such a Degree as to become of an alkaline Nature, is taken into the human Body, it produces there very extraordinary Effects, exciting a Nausea, Horror, Vomiting, great Uneasiness, a Diarrhoea, and Gripings, inflaming the Bile, and exciting Heat, Thirst, and a Fever, and by its putrid Exhalation only it induces a Horror, Nausea, and Vertigo, and wonderfully dissolves the Humours of the Body like a pestilential Poison. This, therefore, we know to be the Nature of that Matter, which is nearly in a State fit to being changed into all the Parts of an animal Body. Rest only, and such a Degree of Heat as has been specified, produce all these Qualities in that Substance. Hence therefore we learn its spontaneous Alteration and Corruption. But it is farther very surprising, that if an impregnated Egg is digested in a proper Stove, with a Heat of ninety-two Degrees, the Parts that are attenuated and altered by this Heat, are spent for the Space of twenty-one Days in nourishing, increasing, and perfecting a Chicken, in which there does not appear any Thing alkaline, foetid, or putrid. Here then the Physician may observe some very wonderful Phenomena; for by Rest, and a certain Degree of Heat, a Substance from thick becomes thin; from tenacious, liquid; from inodorous, foetid; from insipid, of a fracid, very acrid, abominable Taste; from exceedingly mild, caustic; from non-alkaline, extremely alkaline; whilst the latent Oil which was sweet, grows extremely putrid. These Experiments are made in particular upon the Whites of Eggs, the other Parts, where it could be done, being accurately separated from them, because the White alone is that Matter which supplies the Embryo with Nourishment, all the other Parts assisting only to the Alteration of the White, that, when it is changed in a proper Manner, it may be applied to the Carina of the Chicken that is to be brought to Perfection by it.

PUTREFACTION of the SERUM of BLOOD.

Serum put into a tall open Glass, and exposed to a Heat of seventy Degrees, will grow every Hour more and more thin, so as in the Space of three or four Days to be quite resolved and sanious. At the same Time also, from being almost inodorous, it becomes foetid, and exhales a cadaverous Stench; from being insipid, it acquires a fracid, rancid, acrid, abominable Taste; and, if it is kept in this Degree of Heat a few Days, it grows alkaline, putrid, and intolerable to our Senses, evidently discovering its alkaline Nature, by raising an Effervescence with Acids. If it is committed under these Circumstances to Distillation, it yields the first Time a volatile alkaline Salt, exactly like the White of Eggs, treated in the same Manner.

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Hence then we observe, that Serum, when exposed to the Observation of our Senses, by Rest, and the Degrees of Heat mentioned, becomes spontaneously thinner. When it stagnates therefore in the obstructed Vessels of a sick Person, by a gentle Heat, and Time, it dissolves of itself, and often opens the Vessels it had obstructed. Hence in acute inflammatory Disorders, when the Body is reduced to a moderate Heat, in a certain Number of Days, the obstructing Matter becomes capable of circulating in its Vessels, as in Practice is every Day observed. During the Alterations the Serum undergoes in this Experiment, it never becomes acid; whatever the greatest Artists write to the contrary, but always grows putrid. Nor do we ever observe the least Sign of Fermentation, what-

ever Arts are made Use of in order to raise one, but a determined Putrefaction only. It must indeed be confessed, that by thus putrefying it rarefies and produces an elastic Air that flies off from it, but not one that is fermentative, and spirituous. Nor are there any fermented inflammable Spirits generated by this Putrefaction, but putrid Spirits, of another Kind, which are, however, volatile, and capable of taking Fire. For Excrements, close stopped up in a Jakes, and compressed together, have sometimes conceived a strong intestine Motion, and at the same Time have exhaled an extremely foetid Vapour, which, upon the Application of a Candle, has burst out into a violent Flame. From the same Cause sometimes a Heat and Rarefaction have been excited in a dead human Body, about the Abdomen only, and that not very considerable. From what has been said then, the Physician may learn the spontaneous Degeneration of the Humours, when they stagnate, either in their Vessels, or in the Cavities of the Body when extravasated. By acid, compound, saline, and spirituous Bodies, however, this Putrefaction may be prevented.

By the foregoing Experiments, which seem made with great Judgment and Accuracy, we are taught that a great Similitude exists betwixt the *Albumen* of an Egg, and the Serum of the Blood. Now, as the White of an Egg has all the Requisites to the Formation of an animal Body, that is, to Nutrition; when properly applied by the vital Actions to the Parts which require it, and this without any previous Digestion by the Stomach, it must necessarily be one of the most proper Aliments in the World, in morbid Cases, where the digestive Organs are relaxed and weak, where the Fibres of the whole Body want a due Tension, and Elasticity, and where consequently Restoratives are indicated. But in order to answer any good Purpose in this View, it must be given fresh, raw, and without the Application of the least Heat, for Heat, as appears by the foregoing Experiments, renders it unfit for Nutrition; the genial and plastic Warmth of the Body being all that is required to apply it to the Parts which require Nourishment.

It is to be given in a little Milk and Water, or Broth, or may be taken alone, well separated from the Yolk.

It is recommended for many medicinal Purposes, as will appear by the following Quotations.

The raw *Albumen*, or White of an Egg, refrigerates, stops up the Pores; instilled into the Eyes, mitigates an Inflammation there; prevents Pustules from rising after Scalds or Burns, if the Place be immediately anointed with it. It keeps the Face from Sun-burning; applied with Frankincense, as an Anacollema, to the Forehead, it restrains Defluxions; mixed with Wine, Honey, and Oil of Roses, and applied in Wool, it mitigates an Inflammation of the Eyes. Supped raw, it is good against the Bite of the Serpent *Hæmorrhoids*. Used with the least Degree of Warmth, it is effectual in Corrosions of the Bladder, Ulcerations of the Kidnies, Roughness of the *Apera Arteria*, Vomiting of Blood, and Distillations, or Defluxions, on the Breast. *Dioscorides, L. 2. C. 155.*

The White of an Egg has a refrigerating, astringent, and agglutinating Quality.

It is frequently used for Redness of the Eyes, to conglutinate Wounds, mixed with common Bole, and in Fractures. It is of Service also in Anacollemas. See *ANACOLLEMA*.

Hippocrates prescribes three or four Whites of Eggs in Fevers for Refrigeration, and the Expulsion of the morbid Matter.

The Yolk of an Egg is endued with an anodyne, maturating digesting, and relaxing Virtue. Hence it is very often an Ingredient in Clysters, and, mixed with a little Salt, is commonly applied, in a Walnut-shell, to the Navels of Infants in order to loosen the Belly.

They make a Drink of it, which the German Women commonly use in Child-bed; they call it *Sciff*. It is thus prepared:

Take two or four Yolks of Eggs, and one Measure of Water, with half a Measure of Wine (more or less); boil them very well together, in order for drinking. *Schrader. Pharmacop. Med. Gly.*

Sydenham advises the Whites of Eggs as a good Gargarism in a Quinsy, in the following Manner:

Take of distilled Waters of Plantain, red Roses, and Frog-spawn, of each three Ounces; the Whites of three Eggs, beat to a Liquor; white Sugar, three Drams; mix them together for a Gargarism.

ALBURNUM. The white, soft Part of Wood next the Bark. Artificers call it the Sap, to distinguish it from the Heart, which is harder, and of a deeper Colour.

ALBURNUS AUSONII, is a little River Fish which resembles an Anchovy; with a little Head, its Eyes in Proportion large and red, its Back somewhat green, and its Belly white, with two Lines on the Sides.

It is esteem'd aperitive. *Lemery de Drogues.*

It is esteemed a very ordinary Fish. The Flesh is by. It is taken Notice of by Aldrovandus.

ALBUS. A Sort of very ordinary Fish taken Notice of by Aldrovandus, and Gesner. The Flesh is hard, and difficult to digest. Gesner calls it *Capito Lacustris*.

ALBUS FLUOR, or **FLUXUS.** See **FLUOR ALBUS.**

ALCAMP. *White Ink. Rulandus.* Johnson calls it **ALCAMP.**

ALCAFIEL. *Antimony. Rulandus.*

ALCAHEST. This is an arbitrary Word derived from no Language, and coined by Paracelsus, to express an universal Menstruum, or Solvent, as Helmont explains it. As the Discovery of such a Menstruum would be of infinite Importance to Medicine, the Sentiments of the principal Authors who have wrote about it, seem to deserve Consideration. But I am sorry to say, that we are left at last much in the dark, with Respect to this grand Arcanum.

After the elder Van Helmont had published his Writings, the Chymists began to be acquainted with the History of a secret, universal Menstruum, which Paracelsus was said to have possessed, and which he, according to his extravagant Way, called the *Alcabyest*. If any such Thing was ever known to Man, as Helmont solemnly avers it was, it certainly ought to be esteemed the most excellent Gift, that the Divine Being ever bestowed on Mankind, either with respect to Chymistry, or any other Art; for without Dispute it would be infinitely a greater Treasure than the Philosophers Stone, and much more desirable, as, by the Help of it, might easily be obtained, the most certain Instruments, both of Health and Riches. This, with a great deal of Reason, was the Opinion of Mr. Boyle, who, after infinite Diligence, and much Skill thereby acquired, could scarcely believe the Existence of such a Menstruum, so far was he from arriving at a Knowledge of it. The greatest Chymists, however, have so far depended upon the Authority of Helmont, that they speak of it as a Thing he was certainly acquainted with. And here Impostors have taken the Opportunity of cheating People curious of such Kind of Arcana: Prudent Men have always remained in Suspence, not daring absolutely to pronounce any Thing either one Way or other, concerning it. For these Reasons, I shall give an historical Account of this Affair, just as it is, that is, as it may be collected from the Writings of those Authors, who alone have wrote of this Menstruum; that at least we may know the Opinions of those, who tell us, they have possessed, and made Use of this Arcanum. Every Thing, however, that Authors have said on this Subject, has been borrowed from Helmont alone; for, from what Paracelsus himself wrote of the *Alcabyest*, no Mortal would ever have thought of any such Thing, had not Helmont given the Hint, that such great Mysteries were couched under this uncommon Word. As I am not Master of this Chymical Secret, all, therefore, that I can do, is, by carefully examining, and faithfully comparing one Passage with another, to lay before you what is to be found in these Authors upon the Subject of the *Alcabyest*. And if these were really acquainted with it, and design that one who studied their Writings attentively, should find it out, I know no better Way of searching for it, than that which I have proposed. By this Means, at least, any one who is inclined to set about this grand Work, may know what Matter he must make Use of, by what Instruments he must operate, and in what Method he must proceed, that he may not lose both his Labour and his Money. And it will have this farther Advantage, that it will secure us from being cheated by the Artifices of itinerant Impostors, whose confident Boasts of Things they are not in the least acquainted with, render this Caution to the unwary and credulous, in some Degree necessary; for these Pretenders may be easily detected by any one who is acquainted with the Doctrine of Paracelsus, and Van Helmont.

First, let us consider the Name **ALCAHEST**. This Word, before Paracelsus, no Body ever made Use of, not even among the Chymists. And even he himself, as far as I have been able to discover, never used it, but in one Passage, and that in his Treatise, *De Viribus Membrorum, Lib. 2. Cap. 6.* where there are these Words: 'The Liquor *Alcabyest* is of wonderful Efficacy in comforting, strengthening, and preserving the Liver, and consequently preserves against Dropsies, and all Sorts of Distempers, which arise from Disorders of the Liver. The Process for its Preparation is by Resolution after Coagulation, and by coagulating again into a transmuted Form; as the Process of coagulating, and resolving, teaches. And if it separates its like, it becomes a Medicine for the Liver, superior to all Medicines; so that, if the Liver itself were to burst and dissolve, this Medicine would supply its Place, as well as if it had never been burst or dissolved. Whoever therefore apply themselves to Physic, ought to use their utmost Endeavours to be Masters of the Preparation of the *Alcabyest*, that they may be able to avert many Diseases that arise from the Liver.' So that Paracelsus never made Use of this Word but twice, and that only in this Place; nor is there the least Mention of any such Thing, either before or after, that I could find, by a careful Examination of all his Works. No Mortal, therefore, from what he said upon this Head, would ever have thought of this grand Arcanum, had not Helmont afterwards added his Interpretation.

The Derivation, therefore, of this new Word, thus coined by Paracelsus, was examined into. And upon considering, that it was usual with him to conceal common Words by the Transposition of their Letters, it was imagined that was the Case here; though sometimes he formed strange Words, by joining the Beginnings of different Words together. Thus, when he would have you make Use of (Tartarus) Tartar, to resolve the Saburra in the Spleen, he says, *take Sutratar*, L. 11. *De Vir. Memb. C. 7.* And again, when for Diseases peculiar to the Kidnies, he prescribes Saffron, which, from its golden Colour, the Chymists called *Aroma Philosophorum*, he says, *these Distempers are cured by Aroph*, Lib. 11. *de Vir. Memb. Cap. 10.* Hence, therefore, some have thought, that *Alcabest*, signified *Alkali est*, *Rolfinc. Eph. Germ. D. 12. Ann. 6, 7.* Rulandus in his Lexicon, Glauber; and hence supposed, that it has always an Alkali for its Basis, which is then saturated with a proper Acid. Others have been of Opinion, that it was called *Alcabest*, that is, *Staltzgeist*, because if the *Alcabest* is the same with the *Circulatum*, they imagined it was made from Sea Salt, coagulated, resolved, and coagulated into a transmuted Form. But again, others suspected, that it was called *Alcabest*, *quasi Algeist*, or a perfectly pure simple Spirit: This they thought its Process of Coagulation, Resolution, and Coagulating, seemed to teach us. And lastly, there is Faber's Opinion, who says, it is a pure, mercurial, metalline Spirit, which is so united with its own proper Body, that hence two become one Body, that is inseparable, and indestructible. *Eph. Germ. D. 11. Ann. 8. App. 3.* This, then, being all we can learn from the Etymology, let us pass on to the Terms, and see, if by comparing them together, we can get any farther Light into it. Paracelsus himself has left us no synonymous Name, but Helmont has a great many; and therefore these we will now examine. And in short, we have no other Assistance, besides the Authority of Van Helmont alone, who declares, 'that the very same Bottle was delivered to him.'

That I may explain Helmont's Doctrine of the *Alcabest*, so far as it is possible to render it intelligible, I will give the principal Passages in this Author, where it is mentioned, or any Thing said relating to it, and then shall give the Sentiments of Boerhaave, by way of Commentary.

'I know a Water, which I do not care to discover, by Means of which, all Vegetables are changed into a distillable Liquor, without the least Faeces at the Bottom of the Glass; which Liquor being distilled, with the Addition of Alkalies, is reduced into insipid elementary Water. *Helmont. Complexionum atque Misionum elementalium Figmentum, Sect. 27.*

'I put of oaken Coals, and a certain Water, an equal Quantity, in a Glass hermetically stopped. In three Days, all the Coals were turned, by the Heat of a Bath, into two diaphanous Liquors, differing in Gravity and Colour, which being distilled by Sand, with two Degrees of Heat, the Bottom of the Glass appeared as clean, as when it came new from the Glass-house; and soon after, the two Liquors ascended in a Bath-heat both together, equiponderating the Mass of Coals; but the dissolving Liquor remained at the Bottom, keeping its own Weight and Virtues. Moreover, the two Liquors, mixed with a very small Quantity of Chalk, by a third Distillation, ascended almost with their first Weight, and with all the Qualities of Rain-water. Therefore the Gas of the Coals, which does not exhale, except the Vessel be open, and vehemently heated, together with its Ashes, are no other, materially, than meer Water. For the seminal Property of the Concrete which remains in the Gas, by Length of Time, and the Cold, perishes, and the Gas returns to its original Water. *Helmont. ib. Sect. 29.*

'I thought on a Method how to transfer all my Tribulations on the Heads of Nero and Tiberius; and being greatly fatigued, I was on a sudden wonderfully refreshed and comforted, and falling into a Kind of Slumber, I found myself in a Palace superior to human Architecture, where was an exalted Throne, environed with an inaccessible Light of Spirits. He that sat on the Throne was called *Esf*, and his Footstool *Nature*. The Keeper of the Gate was named *Understanding*, who, without speaking a Word, reached me out a Book, *Election from Darkness*, the Title of which was, *The Bud of the Rose not yet opened*. And though the Door-keeper spoke not a Word, I knew I must eat it; I held forth my Hand therefore, took it, and eat it, and it was of an austere and earthy Savour, so as almost to stop my Larynx, and it was with much Time and Difficulty that I got it down. When I had so done, I fancied my Head to be diaphanous; after which came another Spirit of a higher Order, and gave me a Cup, in which was comprehended in a Word, *Ignis Aqua*, a Name purely simple, singular, indeclinable, inseparable, immutable, and immortal. *Potestas Medicaminum. Sect. 3.*

'It is the *Arbor Vitæ*, the Tree of Life alone, that can restore lost Strength, and make Life flow on for a certain Space of Time. But the Difficulty of preparing lies in this, that the Wood [the Cetim] must be resolved, without a Resolution of its Virtues, by such a Warmth as that of Sol Martius, as far as its *Ens Primum*. For it is on account of

'these Qualities that it is endued with a fermentative Faculty of preserving and seasoning, with free Ingress into our first constituent Principles; and insinuating itself, through the Organs, into the Familiarity of our natural Spirits. Now the Liquor obtained by such a Resolution has all the Virtues of the Vital Cedar, together with its seminal Property, and that which is formative of long Life. For the whole Mass of Wood is resolved into a Liquor, which Mass, if it were otherwise distilled, would undergo Transmutation, and become a new Creature; which is sufficiently proved by distilling *Aqua Vitæ* from Grains of Corn or Lees of Beer; and also by Oil distilled from Wood, and even from the Oil of Olives itself. The Manner of Preparation is as follows:

'Resolve Fragments of the Wood Cetim with an equal Weight of the Liquor *Alcabest*, in a sealed Glass, over a gentle Heat; and within a Week you will see all the Wood dissolved into a milky Liquor. About the fifteenth Day these will swim at the Top distinctly two Sorts of Oil, which will increase in Quantity for a Month, and their Separation appear more obvious. Then separate the Oil from the Water by manual Operation, and distil the Water in a Bath, and the Liquor *Alcabest* shall remain, with its first Weight at the Bottom. But digest the Water and Oil for three Months in a gentle Heat, and all the Oil shall take the Nature of Salt, and mix itself with the Water. This is the *Ens primum Cedri*. *Helmont. Arbor Vitæ.*

'The highest and most dignified of all Salts, is what has attained the utmost Degree of Purity, and Subtlety, which pervades all Things, is the only Thing that whilst it acts, remains itself immutable, and which resolves all at Pleasure by a ready Obedience, triumphing over rebellious Matter, with as much Ease, as warm Water melts and volatilises Snow. *Helmont. Potestas Medicaminum. Sect. 24.*

'I am taught by spagyric Theorems that a small Liquor may be prepared, which shall keep the Constitutions of Simples uncorrupted without any other Seasoning. *Helmont. Pharmacopolium. Sect. 34.*

'*Alcabest* reduces all the tangible Bodies of the Universe to their first Life, without any Change in itself, or Diminution of its Virtues, and can be changed or subjugated by none but its Equal. *Helmont. Ignota Actio Reginis. Sect. 11.*

'None ever cured the Leprosy, who had not first obtained the Liquor *Alcabest*, which being so tedious in Preparation, no Man, though he understands the Art, will ever arrive at the Possession of it, except whom the Most High, by special Grace, shall conduct thither: For he must be elected by a peculiar Privilege, and be otherwise qualified, in order to obtain so extraordinary a Medium, by which all sensitive and insensitive sublunary Things are equally penetrated, even to the seminal and intrinsic Root of the *Primum Ens*; whence it puts all Things under Subjection to it, and changes them without Reaction of the Patient, or Depauperation of the Agent, and is therefore the same in Number, Weight, and Activity after the thousandth Action, as after the first. *Helmont de Lithiasi. Sect. 27. de Febribus. 11.*

'Take of the Ludus or Cevilla Paracelli, and the Liquor *Alcabest*, each one Pint. Distil off the *Alcabest*, and the first Time all the Ludus will be changed into a Salt which will run down in a glass Plate set in a moist Place, without any earthy Residuum, and the defluent Liquor will be of a yellow Colour, and, being hermetically stopped, will rise in small Bubbles, like Froth, and swim at the Top in the Form of green melted Fat. And this is the *Altholizoina correctum* of Paracelsus, and the Gall of the Earth. But this Man who thinks he can attain it by an Addition of Salt-petre, or the like, must know that such Salts, how often, or how carefully soever they are mixed with the Ludus, the Salts will only all run down, and leave the Earth in Dregs, in the Plate. But the Ludus ought to be all transmuted into the tinctured Sal Volatile, reserving nothing of its Adjunct, the *Alcabest*, which, as well as the Ludus, preserves its former Weight, and the Ludus keeps its mineral Virtues, which were bestowed on it by the great Creator. This is an extremely difficult Operation, not as to the Preparation of the Ludus but of the *Alcabest*. *Helmont. de Lithiasi. Sect. 23.*

'The Liquor *Alcabest*, *Ens primum Salium*, Lili, the first Metal, the Mercurius Diaphoreticus, or the Aurum Horizontale, one of these, which so ever it be (for they all conspire as Unions in Consanguinity of one Dissolvent) is sufficient to cure all Diseases. *Helmont. Respondet Author. Sect. 1.*

'The Arcana of Paracelsus are,

1. 'The Tincture Lili, reduced from an immature Electrum to a Vinum Vitæ, one Part of which is the first Metal, the other the Essence of the Members.

2. 'The Mercury of Life, the intire Offspring of Stibium, which absolutely cures all nervous Distempers.

3. 'The Tincture Lili, an Antimonial Preparation, of the same Virtues with the preceding, but weaker.

4. 'The Mercurius Diaphoreticus, which is sweeter than Honey, and fixed by the Fire, has all the Properties of the horizontal Sun. It will perform all that the Physician, or Surge-

* Surgeon can wish, as to the healing Part; but is not so powerful in Renovation, as the preceding Preparations.

5. * His *Alcahest* is more eminent, that immortal Liquor, that immutable resolving Water.

6. * His *Sal circulatus*, which reduces all tangible Bodies to the Liquor of their Concretes.

7. * Then follow the Element of Fire out of Copper, the Element, or Milk of Pearls; but the Essences of Gems, and Herbs, are far inferior to the foregoing.

8. * Lastly volatile Salts carry in them the precise Particularity of Herbs and Stones, but attain not to the Efficacy of Universals. But the Salt of Coral, which is the only Cathartic among them, cures Ulcers of the Lungs, Bladder, Larynx and Reins by Purging; and even extirpates the Gout.

* It is common Mercury from which the Liquor *Alcahest* is once distilled, and resides at the Bottom coagulated and pulverisable, neither increased or diminished in Weight. The Water of the Whites of Eggs is to be cohobated with this Powder, till it has acquired the Warmth of Coral.' *Helmont. Arcana Paracelsi.*

In the first Place Van Helmont calls it simply, *Water*; telling us that he 'Knew a *Water* which he must not discover, by the Mediation of which all Vegetables might be transmuted into a distillable Liquor, without the least Fæces remaining at the Bottom of the Vessel.' And he farther tells us, that 'He mixed together a certain *Water* and Coals made from Oak, in an equal Quantity, and digested them with a Bath-heat, in a Glass hermetically closed.' He calls the same a *thick Water*, for he says, 'that in the second Book of the Maccabees,' Chapter the First, there is Mention made of a 'Thick Water, which was a perpetual Fire, and perhaps not unlike his Water.' And he in another Place calls it a *solvent Water*, when he says, 'The Liquor *Alcahest* is an immutable, solvent Water'. But he came still nearer the Thing, when, in one Word, he called it (*Ignis Aqua*) Fire Water; for whilst he is giving an allegorical Account how he came by his Knowledge, he pretends 'He received a Bottle in which there was *Ignis Aqua*, of one Word only, a Name perfectly simple, singular, indeclinable, inseparable, and immortal.' And again he calls it, 'A *Latex* reduced to its least Atoms possible in Nature.' But he very frequently calls it a *Liquor*. 'By the Addition of the Liquor *Alcahest* of Paracelsus, may be known how much any Vegetable contains of either Luminary.' And he calls it also the *solvent Liquor*. All these Things, therefore, seem to intimate, that this ARCANUM was of a moist, liquid Form, like a Sort of Water. In another Place, as a Synonymon, he makes use of the *Fire of Hell*; for he says expressly, by the 'Fire of Hell, which is the Liquor *Alcahest* of Paracelsus. Original Sand refills both Art and Nature, nor can by any Means be made to recede from its Constancy, except by an artificial infernal Fire, in which artificial Fire, Sand becomes Salt.' If Helmont, therefore, in this Appellation has followed Paracelsus, by this we may know what the *Alcahest* was, because Paracelsus himself has wrote of this infernal Fire.

Afterwards, Helmont says, 'This is a most excellent and happy Salt, which has arrived to the utmost Degree of Purity and Subtlety that Nature will admit of.' And, for this Reason, he seems to call it, the '*Ens primum Salium*, the '*Sal Circulatus*,' and the '*Sal Circulatus Paracelsi*;' of which he made Mention in his Book, *de Renovatione & Restauratione*. If, therefore, Van Helmont has acted candidly and honestly in this Affair, we may from these synonymous Terms, and the Writings of Paracelsus, make an Attempt towards a Discovery of this wonderful Menstruum. But before we proceed to this, we must consider its Origin. First, then, 'It is never found spontaneously in Nature, for here Nature is deficient;' in the same Place he asserts, 'That a Part of Earth may be homogeneously reduced into Water by Art;' but strenuously denies at the same Time, that 'This can ever be effected by Nature alone, because by Nature alone no Agent is produced, by which true Earth may be reduced into Salt and Water. Nor is this Agent produced without the Assistance of Chymistry, which alone discovers a Liquor that cannot be altered, being reduced to the smallest Atoms that are possible in Nature. Not that this is to be effected by vulgar Chymistry, but by the Labour of Wisdom.' And this Agent, as he expressly asserts, 'Is the ultimate, and most perfect Production of this sublime Chymistry. And lastly, he says, 'Chymistry, as its most excellent Effect, prepares an universal Solvent. Moreover, in the whole Art there is not any Operation more difficult than the Preparation of the *Alcahest*; nor is there in the whole Art any Thing more laborious. Nor can the Knowledge of this Operation be acquired either by Reading, or Speculation, but by a Fullness of Science, and that too doubly confirmed; and hence very few are qualified to arrive at a Knowledge of it. Hence this Liquor, whose Preparation is so excessively tedious, and difficult, cannot be obtained by human Understanding; for though a Person should have so much Skill in the Art, as to be properly qualified to come to the Knowledge of it; yet

'unless the Most High, by a special Favour, conducts him to it, he will never arrive at it; for whoever enjoys it, must be chosen by a particular Privilege: For God alone is the Dispenser of it, for Reasons that are known to the Adepts.'

From this Origin of the *Alcahest*, thus delivered by Helmont, we may see how much they are mistaken, who idly imagine, they shall be able to prepare it with very little Trouble. These vain Boasters certainly thus discover both their Ignorance and their Dishonesty. Nor let them impose upon you, by pretending to more Things of the same Nature; for Helmont absolutely refutes every Thing of this Kind, by plainly asserting, that 'As in the whole Compass of Nature there is but one Fire (*Vulcanus Ardens*) a burning Fire, so there can be but one Liquor, which will dissolve all Bodies into their first Matter, without any Alteration in itself, or Diminution of its Strength; as the Adepts know and testify.' Being secured, therefore, by this Doctrine, I have been able to silence many ignorant People, rich in Promises and Expectation, and sometimes exceedingly artful, for upon asking them a few Questions, by their Answers their profound Ignorance, with Respect to the Knowledge they boasted of, soon appeared.

Let us now proceed to examine into the stupendous Virtues, which are ascribed to this wonderful and almost tremendous Arcanum. This 'Menstruum then can efficaciously exert its dissolving Power upon all sensible Bodies whatever, whether Simple or Compound, Volatile or Fixed, Solid or Liquid, Animal, Vegetable, or Fossil; even upon Gold and Mercury themselves, upon which nothing else can act, so as to affect their intimate Parts.' Thus in his own Way of Speaking, 'Our Mechanics have discovered to me, that all Bodies, whether rocky, stony Substances, or Gems, Flints, Sand, Marcasites, Clay, Earth, Bricks, Lime, Sulphur, &c. may be transmuted into an actual Salt, equiponderant to the Body from whence it is procured: And Vegetables, Flesh, Bones, Fish, and every Thing like them, I have known to be reduced by it into their three mere Principles: Metals, however, on Account of Anatic Commixture of their Seed and Sand, are reduced to a Salt with Difficulty. For Sand, or original Earth, resists both Art and Nature, nor will by any Help of Art or Nature be made to recede from its primitive Constancy: But under the Power of the artificial infernal Fire alone, Sand becomes Salt, and at last Water. Again, the *Alcahest* of Paracelsus, by subtilising them, transmutes all natural Bodies.' And in another Place, 'All Bodies are easily reduced to Water by the Application of the Liquor *Alcahest* of Paracelsus; even those that otherwise refuse to be resolved into their three Elements. By the Help of this likewise all Vegetables are commutable into a Liquor, which may be distilled without any Fæces remaining at the Bottom of the Glass, even oaken Coal itself. For one and the same Liquor, *Alcahest*, perfectly reduces all tangible Bodies in the Universe to their first Life, even all Poisons themselves, and dissolves every Thing besides itself, as warm Water dissolves Snow, Oil itself, and Spirit of Wine, Cedar-wood; all Kinds of Elixirs Proprietatis; the *Ludus* also of Paracelsus, Mercury, Gold itself, which cannot by any other Solvent whatever be radically destroyed as far as its constituent Principles, as it is much easier to make Gold out of what was not Gold before, than to produce any Thing from Gold which shall not be Gold.' And indeed in this the whole Fraternity of Adepts unanimously agree.

Now let us consider the Manner in which the *Alcahest* exerts its Power upon these its Objects, and here we find its Efficacy is always excited by Fire, and this applied only in a gentle Degree, whether it acts in Digestion, Distillation, or Cohobation. For he mixed the *Alcahest* with 'Coal, made from Oak, in equal Parts, and digested them for three Days in a Bath-heat, in a Glass hermetically closed, and the Solution was then completed.' The '*Sal Circulatum*, by Digestion only, reduces every Sort of Oil, and Spirit of Wine, into a prodigious different Form, from what they were in before.' If the '*Alcahest* is mixed with an equal Weight of Cedar, reduced to small Pieces, and is exposed to a kindly Warmth in a sealed Glass, the whole Wood will, in a Week's Time, be reduced to a milky Liquor.' Sometimes too, the Work is done by one simple Distillation: 'For if the Liquor *Alcahest* is distilled once only from common Mercury, it leaves it at the Bottom coagulated, and pulverizable, and neither increased nor diminished in its Weight, which is effected in a Quarter of an Hour.' But sometimes a Cohobation is necessary, in order to accomplish your Design; 'for frequently, when Bodies are converted into a Salt of the same Weight they were of before, they must be cohobated some Number of Times with the *Sal Circulatus* of Paracelsus, before they will intirely lose their Fixity, which happens principally in Metals, Gold in particular, on Account of the perfectly equable Commixture of its Seed. On the other Hand, if by one Distillation only it is drawn off from the *Ludus*, or *Cevilla* of Paracelsus, this Distillation in so small a Space of Time as that of two Hours, it converts the whole Stone into a Salt of the same Weight. As for any other Manner of applying this universal Solvent, I can discover none, nor does it appear by any

any Argument, that a greater Degree of Fire is necessary for the Operation. By a gentle Agitation of its Parts therefore, excited by the Fire, it is capable of dissolving all Bodies. For the *Alcabeft* itself rises in Distillation with the second Degree of a Sand-heat. But it does not ascend with a Bath-heat.

But farther, there was Nothing ever observed in all Nature, or even related, that is more surprising than the physical Effects which these Authors ascribe to the Action of this Menstruum: For it intirely converts the whole Body of its Solvend, into a Matter which has neither gained nor lost the least Weight during the Operation, and this transmuted Matter seems always to be liquid or saline. In this, however, there is some Diversity; for, Mercury, by the Action of the *Alcabeft*, is reduced to a fixed Powder, which is pulverizable, resists a Wind-fire, and remains fixed if mixed with Lead. Almost all other Bodies are converted into a Salt æquiperant to their former Mass. An oaken Coal is soon changed into two diaphanous Liquors, which differ in Situation and Colour. Cedar-wood is converted into a milky Liquor of equal Weight with it, and then farther into a two-fold Oil, which afterwards, by simple Digestion, are changed into a pure Salt, so that it may be mixed with Water. But the Ludus, or Cevilla of Paracelsus, which is a Stone found at the Bottom of the Schelde, near Antwerp, is within the Space of two Hours only, converted by a gentle Distillation into a Salt equiponderant to the Concrete, which being exposed to the Air, dissolves, and runs into a Liquid without leaving any Fæces at all. From this whole Account then, it is evident, that this Solution at the Beginning is performed after different Manners, but that at last, however, it reduces all Bodies into a Kind of Salt that may be dissolved in Water, Mercury alone excepted, which on Account of its perfect Simplicity, which renders it more pure than Gold, and exceedingly like pure Water, refuses to be converted into a Salt; and hence it radically resists all Division possible to be effected, either by Art or Nature, and for this Reason is perfectly indestructible. These Bodies, however, after they are by the Help of the *Alcabeft* reduced to an equiponderating Salt, still retain their proper Virtues, which depend upon the seminal Property of them, and which therefore are peculiar to them, and not common to others. This very remarkable Circumstance is described, when he says: 'The *Alcabeft* of Paracelsus, by subtilising them, transmutes all Bodies in Nature; for Bodies, when they are reduced to their utmost possible Subtily, at last pass into another Substance, with a Retention of their seminal Properties. By the universal Solvend, all Things return back to their *Ens primum*, and exhibit their native Qualities, whence they have an Opportunity of acquiring great and unlimited Powers.' But more plainly still, while he asserts, 'that this Liquor alone dissolves all Solids into their first Matter, without any Diminution, or Alteration of itself.' And therefore, he cries out, 'Get but acquainted with this homogeneous, immutable Solvent, which resolves all its Objects into their first liquid Matter, and then you will be able to look into the intimate Essences of Things, and examine their Qualities. By this Means, therefore, all these Bodies are converted into a saline volatile Matter, which still retains their particular spiruous Rector. Hence it may be intimately mixed with any Humour of the human Body, and with it circulate through all its Vessels, and in its whole Passage, every where, exert those Powers which are proper to it, with Regard to our Bodies. These, therefore, they called *Potables*.' Hence, then, we learn, what the Adepts meant by potable Gold, and how vain and deceitful the Boast of those is, who pretend to be Masters of it. Gold, when it is corroded by Acids, will still give you again its actual Particles of Gold, though they then lie concealed in the Acid: But the philosophical potable Gold is a saline Liquor, æquiperant to the Gold, without any Menstruum whatever united with it, being only the pure, simple, first Matter of the Gold, or its *Ens primum*. Here therefore, above all, it is particularly remarkable, that the *Alcabeft*, whilst it thus dissolves, never mixes itself at all with its Solvend, but remains perfectly separate from it. Hence therefore, it neither increases nor diminishes the Substance of the Body dissolved, but leaves it exactly the same as it found it. This evidently appears, when he says, 'that the two Liquors of the dissolved oaken Coal, which were different in Situation and Colour, rose with the Warmth of the Bath, whilst the solvent Liquor remained at the Bottom, of the same Weight as before. For it finds no Body with which it can be joined, itself being too pure and subtle, and reduced to its least Atoms, and hence disdaining all Ferments, and always remaining single. Hence it acts only by an external Action, not concurring with its transmuted Object, as the purest Fire uses to act upon its Object, as warm Water melts Snow. For this Liquor leaves nothing of itself mixed with its Solvend.' Hence, therefore, besides others, this Menstruum seems to have two great Advantages above all others: In the first Place, that it does not act by Attraction, or Repulsion,

but only by a mechanical dissolving Power, contrary to all others that we are acquainted with, Fire, perhaps, alone excepted. And then, Secondly, that it always preserves intire the native Powers of its Solvends, and yet, whilst it resolves Poisons, it deprives them of their violent and deadly Quality, and gives them the most excellent medicinal Virtues, by reducing them to their *Ens primum*, which, however, it must be allowed, is very difficult to comprehend. When Bodies, now, are by the Help of the *Alcabeft* reduced into their saline volatile *Ens primum*, retaining at the same Time all their seminal Qualities, if they are then urged any farther by the Action of this Solvend, they are perfectly deprived of their proper seminal Virtue, and from every one, how different soever, there is produced the same unactive, inodorous, insipid, simple, elementary Water, so that by too great an Application of the very same Menstruum, whatever Excellence was produced before, is now destroyed. It appears, therefore, that the ultimate Matter of all tangible Substances is Water, upon which the *Alcabeft* itself can act no farther, but which being again impregnated with the seminal Fecundity of any Seed, may be converted again into any new Bodies whatever. Hear what he says himself: 'Every Body is transmuted into an actual Salt equiponderant to the Body from whence it is made; and this Salt being cohobated some Number of Times, with the Salt Circulatum of Paracelsus, loses intirely all its Fixity, and is transmuted into a Liquor which itself likewise at last becomes an insipid Water, of the same Weight with the Salt from which it proceeded. Original Sand, by the artificial infernal Fire alone, is changed into a Salt, and then a Water.' And, 'I know a Water, by the Mediation of which, all Vegetables are converted into a distillable Juice, which rises without leaving any Fæces at the Bottom of the Glass, and which Juice being distilled with Alcalis, is totally reduced into an insipid elementary Water. An oaken Coal, turned into two Liquors by the *Alcabeft*, and then mixed with a little Chalk and distilled, rises with almost its former Weight, and has all the Qualities of Rain-water. And then they all become so volatile, that they rise with a Bath-heat, and fly off from the *Alcabeft*, which remains at the Bottom.'

But what is much more surprising than all the rest, is, that this Menstruum, whilst it operates so surprisingly upon all other Bodies, is not in the least lessened, altered, or weakened in its Efficacy by any of them: So that in this Respect again it resembles Fire, and is with a great deal of Reason compared to it. By a very expressive Phrase; therefore, it is said 'To act by its Power of acting upon all sublunary Bodies, without Reaction. And after it had dissolved the oaken Coal in so extraordinary a Manner, the solvent Liquor remained at the Bottom of its former Weight and Strength. For its Transmutation is despaired of, as it cannot find any Body worthy to be wedded to, and is single with Regard to every commiscible Ferment, to which it might be in Subjection, and hence it cannot die. In its most perfect Action, therefore, it reduces every tangible Substance to its middle Life; without any Change in itself, or Diminution of its Strength. It is immutable therefore, and immortal. This alone, by operating, is not altered. It acts, therefore, without any Reaction of the Patient, or Depauperation of the Agent; for this Dissolvent is homogeneous and immutable, and being the same, both in Number, Weight, and Activity, it is as efficacious, the thousandth Operation, as it was at first.'

But among other Things remarkable in this Menstruum, is, its Degree of Fixity or Volatility in the Fire; and this again is exceedingly surprising. For after it has rendered all Bodies, the most fixed not excepted, so volatile, that they will rise with the gentle Heat of a Bath, yet itself remains fixed at the Bottom, nor ascends with them. In the mean Time, however, the *Alcabeft* itself is so volatile, that it rises in Distillation, together with the Bodies it has dissolved in the second Degree of a Sand-heat. And hence it may, by Distillation be drawn off from common Mercury, which it fixes and coagulates. Hence, therefore, the small Compass of Heat is exactly determined within which the whole Power of this *Alcabeft* exerts itself upon all Bodies in Nature.

Lastly, before we quit this Subject, we must observe, that this Solvend, which thus remains intire in all its Operations, nor is ever overcome, or fatigued by the Resistance it meets with from any Thing, does yet acknowledge one Body in Nature with which it may be so united, as to be brought into Wedlock with it. This appears evident, by considering the Text of the Author, 'Chymistry was solicitous about finding out a Body, which should have so great a Sympathy of Purity that it should not be dissipated by any Corruptment. And at last, Religion was astonished to see a Liquor discovered, which being reduced to the least possible Atoms in Nature, remained single, and disdained to be wedded to any Ferment. Its Transmutation therefore was despaired of, as it could not find any worthier Body with which it might be united. But the Labour of Wisdom found out an anomalous Body in Nature, which rose without any commiscible'

‘cible Ferment different from itself. This Serpent bit itself, revived from its Poison, and afterwards knew no Death.’ So that we see here the Conjunction of two Things which were in some Measure different. But he intimates this still more plainly and distinctly. He says, ‘That one and the same Liquor, *Alcabeft*, reduces all the tangible Bodies in the Universe to their first Life, without any Alteration in itself, or Diminution of its Strength, but is brought under the Yoke, and altered by its equal alone.’ But he comes still nearer the Affair when he tells us, ‘That when Mercury is perfectly freed from the original Sulphur, which intimately adheres to it, it is not afterwards mutable by any Fire, but immediately destroys all other Seeds, except its Equal.’

This is the Sum of what Helmont has said on the Subject of the *Alcabeft*, and the Whole must rest upon his Authority, because no other Author, I have met with, speaks of it in such Terms. The antient Philosophers and Chymists seem to have been utterly unacquainted with it, at least they nowhere mention it, though, of all the Desiderata in Physic, this is of the greatest Importance.

What has been said on this Subject, will undoubtedly raise a Curiosity of knowing, in what Kind of Matter the *Alcabeft* ought to be looked for. It is for this Reason I will expatiate a little upon this Subject, having made an incredible Variety of Experiments, many of which I have had Reason to regret, and heartily repent of.

Paracelsus had a Liquor, which he prepared, by an infinitely tedious Circulation, from Sea Salt, in which Nature has placed the greatest Degree of Perfection. This, by an indefatigable Industry, he reduced to a perpetual Oil, and then he called it the *Ens primum Salium*, *Oleum Salis*, *Liquor Salis*, *Aqua Salis*, *Circulatus Sal minor*, *Circulatum minus*. And the troublesome Preparation of this *Sal Circulatus* is described without any Thing obscure in it, unless that he does not explain what the Spirit of Wine is, which is required to separate the impure from the pure. This agrees exactly with the Opinion of Van Helmont; for he says, that ‘The Salt of Bodies, being some Number of Times cohobated with the *Sal Circulatus* of Paracelsus, is converted into Water.’ And hence he ascribes the Virtues of the *Alcabeft* to the *Ens primum Salium*; and says, that ‘By the *Sal Circulatus* all Poisons die. Hence he calls it ‘The most supreme and happy Salt, which is reduced to the ultimate Degree both of Purity and Subtily, and hence pervades every Thing, that alone remaining immutable during its Operation, whilst it readily dissolves every Thing else. This *Sal Circulatus* acts wonderfully upon Oil and Spirit of Wine. This *Sal Circulatus* reduces Bodies into the Liquor of their Concrete; and with that may be prepared the *Ludus*.’

But Paracelsus had another SOLVENT much more powerful than the former *Circulatum minus*, and much more difficult to arrive at the Knowledge of, which therefore he called his *Circulatum majus*, *Archidox*. 10. C. 4. And hence, in the same Place, he calls it *Materies Mercurii Salis*; and afterwards, *Living Fire*, *Archid.* 10. C. 4. In common Mercury he acknowledges a most perfect Fire, and a latent, celestial Life, and that the Quintessence of Mercury is celestial Fire, if it is dissolved with its Mother, viz. an *Arcanum* of Salt, *Archidox*. 10. C. 6. When these two, therefore, are intimately united by a true Union, and together rendered pure, subtiler, and volatile, then seems to arise that wonderful mercurial Water, which he describes in the Chapter *de Corrodente Specificis*, where he says, ‘That Gold so dies there, that it continues to be Gold no longer; whereas, in all other Corrosions of Gold, the Gold is only divided into very small Particles, but still remains the same true Gold, and, by an artificial Reduction, may be always recovered again. By this Art, therefore, there is a perfect Marriage of Water with Water: For Water is twofold, viz. a common Water, which resides in Salt, and a metallic Water, which is found in Mercury, both which however have the same Root.’ All this seems to have been understood by Van Helmont exactly in the same Manner, and therefore I shall just add what he has said upon it, as follows: ‘The internal Mercury of Metals, perfectly freed from every Taint of a metallic Sulphur, coheres together with an indissoluble Union, so that it radically resists all possible Division, either by Nature or Art. Nor could I learn the Nature of Water, except under the Rod prepared from Mercury’s Wand. And I found the Nature of Mercury adequate to Water; for it does not contain the least Earth in it, but is always the Son of Water alone.’ And he says, with all the antient Alchemists, ‘If I had not seen, that Mercury eludes all the Labour of the Artists so, that it either flies all off from the Fire still intire, or else all remains in it, and in both Cases retains its immutable and primitive Identity, and the anatic Homogeneity of its Identity, I should say that that Art was not true, which is true without any Falstity, and by far the most true of all others. So that what is above is like that which is beneath, and the contrary. And hence it is absolutely impossible either for Art or Nature to find any different Parts in the Homogeneity of Mercury, not even by the *Alcabeft* itself, as Mercury is more simple than even Gold, and formed with a greater anatic Identity: and

‘hence therefore Mercury is as indestructible as the Elements themselves. Hence all sublunary Things are too weak to subdue pure Mercury, or to penetrate, alter, or defile it. It remains secure in Air, Fire, and the acrid Liquor. It is not affected by any Solvent, much less penetrated by Air; and therefore there is nothing in Nature like this pure Mercury, no not at a Distance. It resembles the *Ens primum* of Metals, and comes very near it, and at last, existing actually simple, is not as a constitutive Part of Things. From these Principles we know that it is brought under the Yoke, and changed by its Equal alone: For this anomalous Body in Nature rose without any commiscible Ferment different from itself; but it bit itself, revived from the Poison, and afterwards knows no Death.’

Thus we have the History of the *Alcabeft* of Paracelsus, and Van Helmont, extracted from their own Writings with the utmost Accuracy. Hence it evidently appears that it is in vain to seek for this universal Menstruum in human Urine, or any of its Productions. Nor can it ever be found in Tartar, or any of its Preparations, though this may be substituted as *Vice-Roy to the Prince*. Nor can Phosphorus ever be reduced to it; because its Properties that have been specified, will not allow of it. Hence also it appears that Glauber is mistaken, when he searches for it in the fixed Alkali of Nitre; as is Zwelfer in expecting to find it in the extremely acid Spirit of Vinegar, distilled from Verdigrease. Nor does the celebrated Guernerus Rolfsincius seem to have had a better Idea of it, when he supposed it to be procurable from a fixed Alkali as its Basis, and a mineral, vegetable, or animal Acid; for from Salt of Tartar, and Vinegar of Antimony, a meer vitiated Tartar is produced; from Salt of Tartar, and Vinegar, a Tartarus Tartarificatus; and from Salt of Tartar saturated with acid Whey, only a more precious Tartarus Tartarificatus. Nor does the Addition of Sal Ammoniac much alter the Case. See *Eph. Germ. D. 1. An. 6, 7. p. 193--196. App.* And indeed, Nobody in the Description of the *Alcabeft* has come nearer to the Sentiments of Paracelsus and Van Helmont, than Petrus Johannes Taber, in his Manuscript upon the Subject of Alchemy, wrote to the most serene Duke of Holstein, which is printed in *Eph. Germ. D. 2. An. 8. App. p. 111. 117.* in which are these remarkable Words, which confirm my Opinion. ‘The Liquor *Alcabeft* is a mercurial, pure, metallic Spirit, so united to its own proper natural Body, that these two become one inseparable indestructible Being, destroying every Thing else, and converting them into their first Matter. It is the true *Mercurius Philosophorum*, prepared from the mineral Kingdom, joined to its own Body, inseparable from it, being a milky, buttery Liquor, penetrating, and dissolving every Thing. This is of two Sorts, simple and compound. The Simple is made from a pure metallic Acid, and a pure metallic Salt, rendered volatile with its Spirit; and the Preparation of this is extremely difficult. But that of the Compound, is still far more so; for this is prepared from a mineral Acid, and a pure animal and vegetable Salt. The Liquor *Alcabeft*, or the perfect pure *Mercurius Philosophorum*, is like Fire, of an incorruptible, unalterable Nature, reducing every Thing to its first Matter.’ And the ingenious Joachim Becherus, in his *Physica Subterranea*, is almost of the same Opinion; for he asserts, that he has discovered in Sea-salt, a certain arsenical and mercurificating Power, which was it but separated, and pure, would be the *Alcabeft* itself, which nevertheless would be very different from the *Mercurius Philosophorum*. Hence Mercury itself, he looks upon as a sulphureo-metalline Substance, which of itself would be solid, and which receives all its Fluidity from an arsenical Sulphur of common Salt. This very subtle Conjecture, I wish he had more clearly demonstrated. The Sum of his Argument amounts to this: ‘The purest Silver, corroded by Spirit of Nitre, and precipitated by Spirit of Sea-salt, becomes volatile, and then easily disposed to part with its Mercury; and therefore Sea-salt can change the purest Metals from their fixed Nature, into true Mercury.’ If I should be asked, if I believe that any of the Chymists were ever possessed of this grand Arcanum? I should answer thus: Van Helmont complains, that the Bottle was once given him, but that it was taken away again, and therefore he could not make many Experiments with that Liquor: And Paracelsus does not say so many and so great Things of his Solvent, and therefore it is difficult to determine any Thing about it with any Degree of Certainty. This, however, I will venture to assert, that if you examine Sea-salt and Mercury, by every chymical Method possible, you will never repent of your Trouble. *Boerhaave’s Chymistry.*

Boerhaave has said so much on the Subject of the *Alcabeft*, that I have only to add, that Van Helmont’s *Circulatum Minus* is said to be prepared by a Circulation of nine Weeks, from equal Parts of Spirit of Urine rectified three Times, Alcohol, or highly rectified Spirit of Wine, and Vinegar twice rectified.

Those who are acquainted with the great Effects which may be produced by these separately, will readily believe that these by an intimate Union may be converted into a Menstruum capable of doing surprising Things; especially as we know, that

that neutral Menstrua, as this must be, will act upon some very hard Bodies; which are not otherwise dissoluble by acid, alkaline, watery, or spirituous Menstrua.

This I insert on the Authority of a Gentleman who had it from a Son of Helmont's, who lived for some Years at the Court of Hanover, under the Favour and Protection of the Princess Sophia, Grandmother to the present King of Great Britain.

ALCALI, or ALKALI, a Word much used by the Chymists to express a Body which is esteemed the Reverse of an Acid. Many whimsical Theories have been spun out by Chymists of warm Imaginations, upon a Supposition of a certain Enmity subsisting betwixt these two. This is therefore an Article of Importance enough to deserve a strict Examination, which I shall therefore bestow upon it, in Hopes of giving a just Idea of some Things not commonly known, unless to Chymists of a philosophical Turn, and those perhaps of the first Rank.

KALI, a Word well known upon the Eastern Coasts, and in Egypt, signifies a certain Herb, replete with Salt, which grows about the Sea-shore, and the Banks of the Nile, and also those of the celebrated River Belus in Syria, as Pliny assures us from the Testimony of antient Authors. This Plant, if burnt, when it arrives to its full Growth, produces Ashes remarkable for their salt, acrid Taste, an Evidence of its abounding with Salt. When these Ashes are boiled in Water, they yield a strong, acrid, salt Lixivium, or Lyè, consisting of the Salt communicated by them to the Water, which being properly separated, there remains a greyish Part, which will neither dissolve in Water, nor burn in the Fire, but is perfectly insipid, and of the Nature of Earth. If this Lixivium, or Lyè, is evaporated to a Dryness in an iron Vessel, a white solid Mass, of a most acrid caustic Taste, and perfectly soluble in Water, is left behind. Since, therefore, *Lix* in the Latin Tongue signifies *Ashes*, and *Lixa*, a *Maker of Ashes*, hence Pliny very properly says, *Cinerum Lixivium*. L. 39. C. 99. and *Lixivium Cineris*, L. 14. C. 2. 25. L. 15. C. 18. And Columella calls Water when it is impregnated with this Salt, and filtered, *Lixivium*, L. 12. C. 41. All these Salts, therefore, are properly enough called *Lixivious Salts*. By Terms, however, already received, they are called *Alcalies*, or *Alcaline Salts*. They are also called by some *Rochetta*, *Soda*, or *Zoda*. From this Salt, and the Calx of all Stones that strike Fire with Steel, may be prepared *Frit* for the making of Glass. These also quickened with Lime, and mixed with any oily Substances whatever, are convertible into Soap. The best of this Sort of Salt is brought from Alexandria in Egypt and Tripoli.

As all our physical Knowledge of Things depends upon the Discoveries which our Senses make in natural Bodies, hence all their Characteristics must be taken only from such sensible Signs thus discovered. Nor are we able to distinguish Bodies in any other Manner. The following Characters therefore of an *Alkali*, may be laid down as genuine, and sufficient for the Purposes both of the Chymist, the Philosopher, and Physician.

1. A fixed *Alcaline Salt* is produced from a vegetable Substance.
2. It is only prepared from a Vegetable by the Action of Fire, which converts it into Ashes.
3. When it is thus prepared, it will remain a considerable Time in the Fire, thus demonstrating its Fixity.
4. In a moist Air, it perfectly dissolves and deposits some Faeces, being impatient of a continued Dryness, if any Part of the Air has Access to it.
5. It impresses an acrimonious Taste upon the Tongue, somewhat caustic, and it excites a Taste of Urine, on which Account these Salts have, though not very properly, been called *Urinous Salts*. For the Taste of this Salt does not resemble that of Urine, at the first Application. But when this has been in the Mouth some Time, and by its Stimulation caused a Discharge of the Saliva, then the neutral animal Salts which are in the Saliva, deposit all their Acid on the fixed *Alkali*, and thus become volatile and *alkaline*, and then impress upon the Tongue a disagreeable urinous Taste, of which this is the true Origin.
6. This Salt, when it is perfectly pure and without Mixture, has not the least Smell, being extremely fixed, even in the Fire. But as it attracts every Acid, if it meets with any Body, which contains a volatile *alkaline Salt*, fixed by an Acid, and therefore without any Smell, it then immediately absorbs the Acid, and the *Alkali* being by this Means disengaged, and rendered volatile, affects the Organs with an *alkaline* Smell, which is falsely ascribed to the fixed Salt. This appears evidently upon mixing a fixed *alkaline Salt* with warm fresh Urine, upon which the Liquor that was inodorous before, instantly emits a disagreeable *alkaline* Smell.
7. Another Property of this Salt is, that when mixed with any Acid whatever, it immediately produces an Ebullition and Effervescence; and afterwards is so intimately united with it into one Mass, that if the Saturation is compleat, the Compound discovers no Sign, either of an *Alkali* or an Acid, but there

is always by this Means produced a Salt of another Nature, which is usually called *Neutral*.

8. If a pure fixed *Alkali* is mixed with the Juice of the Turnsole, Roses, or Violets, it presently changes their natural Colour, which is a Kind of Purple, into a Green.

9. When this *Alcaline Salt* is applied for some Time to a human Body that is warm, and consequently exhales some Moisture, it excites an acute Inflammation, attended with all its Symptoms, which soon becomes a grey, hard, dead, and often black Escar, it is therefore capable of producing a true Sphacelus, or Mortification.

10. All these Salts have the Faculty of deterging and cleansing, which is not the Case with Respect to those called *Neutral*. These then are the Marks by which fixed *Alcaline Salts* may be known and distinguished from all others; and by these we shall be enabled to avoid Confusion.

Such *alkaline* fixed Salts may be also procured from any crude, fresh Vegetable, burnt to Ashes, and treated in the Manner above mentioned. But some Plants, by this Management, yield a very small Quantity. Such are those, which, when crude, have a pungent Smell, which strikes the Nose, and makes the Eyes water; for almost all the Salt of the Plants is volatile, and is dissipated by the Heat of the Fire. Garlic, the bulbous vomiting Roots, Onions, Scurvygrass, Ladies-smock, Rockets, Hedge-mustard, Cresses, Radishes, Rapes, Squills, Leeks, Mustard, and the like, are of this Class, in which Nature has so far perfected their *Alcaline Salts*, as to render them volatile, as in Animals.

These lixivious acrid Salts, have been known to the Antients, in almost all Ages of which we have any Account. Aristotle tells us, that the Ashes of burnt Reeds and Bulrushes, boiled in Water, yield a plentiful Salt. And Varro, *de Re Rustica*, informs us, that some People about the Rhine, having neither Fossil, nor Sea-salt, instead of those, made Use of a salt Coal, which they prepared from some Sorts of Wood, burnt: From which it is plain, that they knew a Method of preparing these Salts, not unlike that of Trachenius, so as to make them less acrid, and to come nearer to the Nature of the native neutral Salts. Hence Pliny asserts, that Ashes have the Quality of Salt, but are milder. And that the burnt Faeces of Wine have the Virtues of Nitre (the antient Nitre). And in another Place he speaks of the Nitre produced from burnt Oak, which, he says, yields but a small Quantity, L. 31. C. 10. We farther learn from Pliny, that Ashes were in his Time used medicinally, and the Lixivium made of them drank as a Remedy. All these Authorities; to which more might be added, sufficiently evince, that the Discovery of *Alcalies* is not so modern as some imagine.

No Native Salts have yet been discovered, with which the preceding Characteristics agree, *Alcaline Salts* being procured from vegetable Substances only, by the Action of Fire. But since the first Calcination of Vegetables that ever happened in the World, these Salts have been produced. Hence therefore, in all Ages and Places where this has happened, there must have been a prodigious Quantity of this Salt generated, which always is at last together with the Ashes returned to the Earth. In the Revolution, therefore, of such a Number of Years, the whole Earth must have been converted into this Salt, provided it was immutable. But this is not the Case, for these Salts, when committed to the Earth, render it indeed fruitful, but then they lose their *alkaline* Nature, and, imbibing the Acid of the Air, become neutral Salts, and act as such.

It is farther remarkable, that no Plant which ever grows upon the Surface of the Earth, if it was suffered to grow dry, carious, and rotten, would ever yield a single Grain of a fixed *Alkali*; but on the Contrary, they are always either dissipated into such minute volatile Particles, as escape the Notice of our Senses, or leave behind them a Substance, which upon Examination appears to be simple Earth. This Experiment, therefore, confirmed universally in all Ages, evidently demonstrates, that Nature never produces a fixed *Alcaline Salt*, either in the Solids or Fluids of Vegetables.

Hence it is certain, that fixed *Alcaline Salts* have their specific Nature imparted to them by Fire, and not by any natural vegetable Operation. But this is still farther evinced by the following Experiment, which never fails to succeed in the same Manner: Take any Vegetables, which, if burnt, would yield a large Quantity of a fixed *Alcaline Salt*, let them be reduced to Putrefaction by Art, so that their whole Substance shall be perfectly putrefied, they will then be rendered exceedingly fetid, and a great Part of them volatile, and, if they are burnt in an open Fire, will not yield the least Portion of a fixed Salt, but what remains will be a perfectly insipid Earth. If therefore we view this Experiment in a just Light, we must be of Opinion, that fixed *Alcaline Salts* are as much the Creature of Fire as Glass, which Nobody ever suspected to be a vegetable Production, though vegetable *Alcaline Salts* enter its Composition, and are necessary to its Existence.

It must also be remembered, that these *Alcaline Salts* are capable of being resolved into a considerable Part that is saline, hard,

hard, bitter, and almost vitrescent; into a simple Earth; and into an *Alcaline Salt*, that is stronger and more pure: And thus we may observe that these *Alcaline Salts* are no simple Bodies; but that they are compounded of different Parts united together, and that the Conjunction of their Principles into one Mass, which has the Appearance of being homogeneous, is effected by the Strength of the Fire. Hence it will follow, that Nature never acts by fixed *Alcaline Salts*, as by her proper Instruments, unless when they are received first prepared by the Fire. And that even then, when she makes Use of them, thus prepared, in bringing about her Purposes, she only operates by them, as they are compounded of the three above-mentioned Principles; to which, however, as a fourth Part, there still seems to remain a Portion of Oil, as many Arguments evince.

Hence it appears, that as these fixed *Alcaline Salts* are rendered more and more simple by a Separation of their constituent Parts, the Salt that thus arises will be continually different; for that which remains after a Separation of some of its Principles, will always be of another, and more simple Nature, and consequently will have a different Power of acting. Thus, in Pot-ash, which yields the best *Alkali*, a considerable Part of it is a bitter, hard, pellucid Salt, which does not very readily dissolve in Water. If this is carefully separated from the rest, a purer *Alkali* is obtained, fitter than the former, before this Separation, for many Operations that are performed by *Alkalies*.

It is farther to be observed, that these *Alcaline Salts* may be greatly altered by the casual Admixture of some other Body, whilst the Vegetables are burning, which being also of a fixed Nature, may be united with them, and remain in the Ashes. Suppose, for Instance, that Nitre should happen to come among them; then this being fixed with the other vegetable Salt, would produce an *Alkali*, to which, if Oil of Vitriol was added, it would emit a fetid Fume, that would in Smell resemble Spirit of Nitre, which never is the Case, if the *Alkali* is pure. The same is true with Respect to Sea-salt, and many others. And lastly, we must take Notice, that the very Burning of Vegetables, as it is performed in a different Manner, will produce different Salts; for it is a known Truth, that if the same Vegetable is burnt suddenly in a brisk strong Fire, it will yield a Salt different from what is produced by burning it in a slow smothering Fire.

Amongst *Alcaline Salts*, the most common is that which is usually called *Pot-ash*. This is imported in great Quantities from Courland, Russia, Poland, and other Parts of the North, where it is prepared from the Wood of green Firs, Pines, Oaks, and others of a like Nature, of which they make large Piles in proper Trenches, and burn them till they are reduced to Ashes. These are immediately sifted, and were by the Antients called *Lix*, by the Moderns *Cineres Clavellati*, a Name taken from the *Clavæ*, or *Clavi*, Billets, into which the Wood is cleft, to make it burn more readily. These Ashes are then dissolved in boiling Water, and when the Liquor, which contains the Salt, is depurated by Subsiding, it is poured off clear, and makes a Lixivium. This is immediately put into large Copper Vessels, and is there boiled for the Space of three Days and Nights, till at last a Salt is left, which takes the Name of *Pot-ash*, from the Pots the Lixivium is boiled in. This Salt, whilst it is hot and dry, must be put up in Casks, made of dry Wood, and which is not impregnated with Oil of any Kind, and by this Means it may be preserved dry; otherwise, if it is exposed to the Air, especially one that is moist, it will run into a pinguous *alcaline* Fluid, exactly like Oil of Tartar *per Deliquium*.

By the Manner in which these fixed *alcaline Salts* are produced, one would not suspect them to contain any considerable Quantity of Earth, and yet upon Examination, we find they yield a great deal, even after they have been rendered as pure as it is possible to make them. The Truth of this will be evinced by the following Process:

Take a strong Lixivium of vegetable Ashes, and by suffering it to stand quiet for a long Time, let all the terrestrial Faeces subside to the Bottom; and by this Means, it will be so depurated, as to become as limpid as Water: Let it then be depurated by repeated Filtrations till it become as clear as Crystal. This Liquor then, if examined with a Microscope ever so nicely, will not discover the least Sign of any terrestrial Substance. Then take this pure Lixivium, and put it into a clean Vessel, and in a quiet Place, as free as possible from Dust, reduce it to the Consistence of a thick Oil; and then in a clean iron Pot evaporate this thick Liquor to a Dryness, keeping it continually stirring with an iron Spatula; and by this Means, you will procure an exceeding *Alcaline Salt*. When this is done, put this Salt into a clean Crucible, and with a Tile cover it over as close as possible, and in this Condition commit it to a very strong Fire till it is melted: Then pour it out into a warm brass Mortar, and with a hot Pestil rub it immediately into a Powder. Let this Powder then be put into a large glass Basin, and be thus exposed to the Air in a Place free from Dust, and the Salt in a very short Time will be intirely dissolved into a Liquor perfectly fluid, whilst to the Bottom there will fall a

white terrestrial Powder, which being thoroughly washed from the Salt that adheres to it, will appear to be nothing but mere Earth, such exactly as that, which remained, of the vegetable Ashes after the Salt was all extracted. If you take this Oil of Tartar *per Deliquium* and dry it, calcine it, and expose it to the Air as before, it will dissolve again, and you will have a new Oil *per Deliquium*, and always some Earth remaining; and if this Operation is repeated a sufficient Number of Times, at last the greatest Part of the fixed *Alcaline Salt* will be reduced to a mere simple Earth, which in burning was united with that other Principle, both which, joined together, formed the *Alcaline Salt*; which saline Principle being now by many Calcinations and Solutions separated from its Earth, and set at Liberty, flies off, and is dissipated into the Air, and leaves the Earth alone. If all this, Earth, however, is collected together, and weighed, it will be found a good deal lighter than the Salt at first made Use of; this Decrease in its Weight evidently evincing, that a great Part of the Salt was rendered volatile, and thus carried away. As this Experiment, therefore, constantly succeeds in this Manner, we cannot but conclude, that this Earth, thus discovered, did really exist before in the fixed *Alcaline Salt*, from which it is by this Means procured, and that in so latent a Form, that it suffered itself, during that Time, to be perfectly dissolved in Water, which otherwise is so repugnant to the Nature of Earth. And hence, therefore, it farther appears, that the purest Earth, when it is united with some other Principle, is totally dissoluble in Water, though it is in no Degree soluble in Water when alone.

But it often happens during the Repetition of this Operation, that the *Alkali* changes its first Nature, and is converted into a neutral Salt, which easily melts in the Fire like Wax: And hence some Chymists have vainly thought, that they were Masters of that great Secret, an *incorated, fixed, Alcaline Salt*, which the antient Chymists so highly extolled. But this only happens from the volatile Acid in the Air, applying itself to this Salt, and being united with it, by which Means a new Kind of Salt is produced, compounded of the *Alkali*, and this Acid, and hence easily melting in the Fire, but deprived of all its *Alcaline* Virtue.

A fixed *Alkali*, procured in the Manner above described, has, above all others, every Mark of an *Alkali*. This Salt, therefore, we may fix as a Standard for all of this Kind, by the Character of which we may examine any Salts that we are in Doubt about, whether they belong to this Class, or not. And thus we learn, that *Alcaline Salts*, procured by burning, are by no Means homogeneous, but composed of different Principles. Amongst these, the true saline Part is greatly less, than might be imagined, and when it is alone it is volatile, and escapes the Notice of our Senses, insomuch that as yet we are not come to a Knowledge of its proper Nature.

The Juice pressed from ripe Grapes, spontaneously ferments; and during this Operation, it is called Must. After this Fermentation is over, and the thicker Faeces subside, and it has stood a sufficient Time quiet in the Cask, it becomes limpid, fine, and, in Appearance, homogeneous. This is called new Wine, after having deposited these Faeces, which are named the Lees, or Mother, of Wine, and which were first dispersed in the Must, then elevated into Flowers, or Yeast, and afterwards subsiding, are collected at the Bottom of the Vessel. The Wine, when it is thus become fine, if it is drawn off from the Lees into a clean Vessel, leaves all these thick Faeces behind it; from which, by pressing them strongly through thick Canvas Bags, a turbid Wine is procured, which is used for making the strongest Vinegar. If the dry Faeces that still remain in the Bags, and are formed into Cakes, are burnt to Ashes, these, if they are sifted, dissolved in Water, and depurated from the subsiding Earth, yield a clear Lixivium. And this, by Evaporation, in large Vessels produces a Salt, very like the former, but more pure, and more acrid. This, then, is a second Species of fixed *Alcaline Salts*, which by the preceding Fermentation seem to be rendered more subtle than the former.

If Wine, thus fermented, defecated, and rendered fine, is drawn off into a clean Cask, and stands for some Time, there will then begin to appear small shining Bodies in it, like Particles of Glass, which gradually uniting together, form larger Globules, which fix upon every Part of the Vessel that the Wine reaches, and thus, by Degrees, incrustate over its whole Surface with a Kind of stony Matter, called, for this Reason, very properly, by the Germans, *Wine-Stone*; by the Chymists, *Tartar*. This is always of an acid Taste, and produced from Wine only which has been fermented, and depurated in the Manner above-mentioned.

When Tartar is distilled, a very black Mass remains at the Bottom of the Retort, which is perfectly *Alcaline*, and exceedingly acrid; and this is the only Method known of producing a fixed, alkaline, acrid, vegetable *Alkali* in a close Vessel; for all other vegetable Substances whatever, when exposed to the strongest Fire in a Retort, produce a black Coal, but never afford any *Alcaline Salt*, till this Coal is afterwards burnt in an open Fire. But if this black *Alcaline* Coal of Tartar is taken

out of the Retort, and burnt in an open Fire, it yields a white *Alcaline Salt*, of all fixed *Alcalies*, the most acrid and pure. By this surprising Experiment, we learn, how much Fermentation promotes the Production of an *Alkali*, though at the same Time it always heightens, and even generates an Acid. Both *Alcalies* and Acids, therefore, are more readily produced, by the Assistance of Fermentation, than without it; which Observation, certainly, is of great Importance, though very little taken Notice of.

But all *Alcalies*, from whatever Vegetable produced, when by the strongest Fire they are at last brought to their greatest *alkaline* Perfection, become so perfectly alike, that they can scarcely be distinguished from each other. There is, however, one trifling Circumstance, wherein they differ, which is, that Glafs made with the very same Flints, but different fixed Salts, will differ a little with Respect to Colour, so that what is prepared with the *Alcaline Salt* of Fern, shall be different from that made with any other Salt. But Chymists are very sensible, that a very small Matter will make a considerable Alteration in the Colour of Glafs; thus, Pounding the Salt in a metal or marble Mortar, will produce a Difference. Hence it seems possible, that something metalline may insinuate itself into Vegetables, which being naturally fixed in the Fire, may impart Properties to the Salts which escape the Notice of our Senses, till they discover themselves in the Colour of the Glafs produced from them. It is certain, that Particles of Iron lie concealed in many Bodies; and perhaps Copper may do the same.

Another Sort of fixed *Alcaline Salt*, which has been discovered by the Chymists, and accurately described by Glauber, is prepared in the following Manner:

Put some pure Nitre in a clean Vessel, let it melt over the Fire, and it will then scarcely have any visible Motion. Whilst it is in this State, throw a Piece of burning Coal into it, and in an Instant it will produce a great Noise, the Coal will be agitated upon the Surface of the Nitre, till it is consumed, and then the Nitre will flow quietly again, as before; then throw in another Piece of Coal as before, and the same Appearances will be renewed. Repeat this till the Nitre is no longer moved by the Application of the Coal, and then what remains, will in every Respect answer the Character of an *Alcaline* fixed Salt: Thus, for Example, it betrays a caustic Acrimony, and an urinous Taste in the Mouth; it raises an Ebullition with all known Acids; if saturated with an Acid, it is converted into a compound Salt, whose Nature is determined by that of the Acid; and it has the very same Effect as the *Alcaline Salt* described above, with Respect to the Production of Colours, Precipitations, and Solutions of Bodies. This Salt, however, differs in some Respects from the former, as it always retains something of Nitre, which is not utterly destroyed by the Process. This does not discover itself, till some of the best Oil of Vitriol is poured upon it; but then a Vapour instantly arises, which by its Smell, like that of Spirit of Nitre, or Aqua Fortis, discovers its nitrous Nature. In this Experiment, the Oil of Vitriol generally grows black, when it is mixed with the *Alkali*, whence it appears, that something of the Charcoal is united with the *Alcaline Salt*. Glauber, therefore, was certainly in the right, in believing this *Alkali* of Nitre, to be in some Measure different from vegetable *Alcalies*; but when he extols its Virtues above all others, it is possible his own Discovery might betray him into a little Exaggeration. For he boasts of the Oil *per Deliquium* of this fixed *Alcaline Salt*, as if it was the *Alcahest*, or universal Solvent.

But a third, and the most expeditious Way of producing a fixed *Alcaline Salt*, and that in great Quantity, is as follows: Take of the best and driest Tartar, and Nitre reduced to a fine Powder, an equal Quantity; mix them together, and throw them by a little at a Time, into a clean iron Vessel, made almost red hot, and an instantaneous Desflagration will ensue, and a white, *alkaline*, fixed Salt will be produced. This, too, is like a vegetable *Alkali* in every Characteristic, except that upon being mixed with Oil of Vitriol, it betrays by the Smell its original Nitre.

There is another singular Method of preparing a fixed, fiery, *Alcaline Salt* from Nitre, and that in a very little Time, as follows: After Antimony is as much as is possible deprived of its Sulphur, the pure metalline Part, which remains, is called its *Regulus*. Take this *Regulus*, put it into a clean Crucible, melt it in the Fire, and when it is in Fusion, add an eighth Part of the purest, and driest Nitre. It is something surprising to find that this Nitre, which generally flows easily in a strong Fire, cannot now be melted, without the Application of a Heat, intense enough to fuse Copper. And when it is urged with a Degree of Fire sufficient to melt it, it immediately acquires a golden Colour; and when the Whole is poured out into a Cone, the Nitre rises to the Top, in the Form of a golden Cake. This, when separated by striking the Cone, is impatient of Dryness, and is of so acrid, *alkaline* a Nature, that it is perfectly fiery in almost all its Effects: Nor have the greatest Masters in Chymistry ever found any Method of communicating to Salt an equal Degree of Acrimony. And here it is observable that Nitre, which is the coldest of all Salts, and has not the least Mark

of any *Alkali* in it, when it is thus fused with the metalline Part of Antimony, acquires this Acrimony, as it were, by Contact. It is probable, in this Case, that the Sulphur of Antimony is very intimately united with the Nitre; for the Salt thus produced, whilst it is exceeding dry, and hot, makes a red Tincture with pure Spirit of Wine, and that immediately, of an exceeding caustic Nature. This Experiment succeeds, whether the *Regulus* is made with Iron, according to Suchten's Method, or with Tartar and Nitre, in the common Way. But this Effect will not be produced, so long as the external Sulphur adheres to the Antimony, the Experiment then only answering, when this Part being separated, the remaining reguline Part is fused with the Nitre. The sudden Change that is in this Case effected, is so much the more surprising, as Nitre with Sulphur never becomes *alkalious*, but is converted into a bitterish Sal Polychreston. And what still makes it more extraordinary is, that Nitre, if it is kept for a considerable Time in Fusion by itself, will undergo no Alteration, but remain the same. Hence, then, we learn, what sudden and unsuspected Effects are produced by the Combination of Bodies, which it was not possible to foresee; and that general Conclusions in Physics, are liable to a great deal of Error. From this Experiment, also, we may observe, how easily the whole Substance of Nitre grows *alkaline*, as it were, by mere Contact; for in this Instance, it is not mixed with the melted Antimony, but only flows at the Top of it.

The Properties of fixed *Alcaline Salts* are as follows:

They attract Water very powerfully and at a great Distance, and from every known Body in which it resides. This is plain to the Eye, for when such an *Alkali* is taken out of a strong Fire, if it is suffered to remain in a very hot Air, close by the Fire, where Water can by no other Art be discovered, it will even there grow moist, and dissolve: And if it is then put into a clean, dry, glafs Vessel, and dried over the Fire, and the Vapour that exhales, is received, and condensed in an Alembic, it will yield again the pure Water which the *Alkali* had attracted. Other Salts, if moist before, would have been deprived of their Water in the very same Degree of Heat, and the same Place where the dry *Alkali* attracted Moisture. These *Alcaline Salts* therefore, are true Magnets to Water; by this they are dissolved, and are strongly united with it; and hence, when they are once dissolved in Water, a Heat equal to that of boiling Water will not perfectly dry them again.

Thus, for Instance, Oil of Tartar *per Deliquium*, will not be dried in a Heat of two hundred and fourteen Degrees of the common mercurial Thermometer, which is sufficient to make Water boil; but it must be put into a metal Vessel, and kept continually stirring in a Heat of more than six hundred Degrees, in order to separate all the Water from it: Hence, we scarcely know any Body that parts with its Water with more Difficulty.

The following Experiments were made with a View of discovering the Force with which fixed *Alcaline Salts* attract Water, the Quantity they imbibe, and the Spaces through which their attractive Virtue is diffused.

An Ounce of a fixed *Alcaline Salt*, exceedingly pure and dry, was put into a clean glafs Basin, and exposed to a dry Air, in a subterraneous Place, that was every way inclosed, and not in the least disturbed by any Wind; and in a little Time, the Water was attracted out of this still Air to the Surface of the Salt, and the Water was thus attracted by the Salt, till the Salt was impregnated with near three Ounces of Water, but being then thoroughly saturated, it did not imbibe any more. Hence it appears, that six cubic Feet of Air at least, was required to supply this Salt with such a Quantity of Water. For if we suppose the Weight of Air to that of Water, as one to a thousand, and a cubic Foot of Water to weigh sixty-four Pounds, then all the heavy Bodies in a cubic Foot of Air, will weigh $\frac{1}{16}$ of a Pound. Let us imagine only half of these heavy Corpuscles to be pure Water, the other half, all the rest of the ponderous Bodies contained in the Air, and then it appears that in a cubic Foot of Air, there will be about half an Ounce of Water. As this Salt, therefore, is capable of attracting Water out of so large a Space, we hence discover a very surprising Power in Nature. Sendivogius, therefore, well observed, that the more *Alcalies* are burnt, the more Water these calcined Bodies attract out of the Air. It is possible, however, that the Water in the Air, at a Distance from that which surrounds the *Alcaline Salt*, may be drawn into this Air, and supply the Place of that Water which is attracted by the Salt.

But to come at a more accurate Knowledge of this Attraction of Water by *Alcaline Salts*, Boerhaave took a large glafs Bottle, very clean, and dry, and hot, as if it had just been taken out of the Glafs-House Oven. Into this he put some pure Salt of Tartar, very hot and dry also, and reduced to Powder, in the Manner above described. He then immediately stopped the Mouth of the Bottle with a dry Cork, and tied over it a Hog's Bladder softened with Oil, and made very supple: The Effect of this Experiment was, that the Salt which adhered to the Side of the Glafs, was grown moist with the Water contained in that small Quantity of Air included in the glafs Bottle, though the Air was extremely hot and dry, at the Time that the Bottle was closed.

2. It has not yet been determined with any Degree of Certainty, whether fixed *Alcaline Salts* repel Air, or attract it so strongly, as not to part with it again readily. Experiments that have been made with this View leave the Thing dubious. It is very certain that Oil of *Alcaline Salts per Deliquium*, examined by the Air-Pump, gives not the least Indications of containing Air, since none is to be separated from it, when the Pressure of the Atmosphere is taken away, even though the Oil is made very hot in order to expel the Air. On the contrary it is equally certain, that when *Alcaline Oils per Deliquium* are mixed with Oil of Vitriol, from which the Air has been extracted by the Air-Pump, a surprising Quantity of elastic Air is produced, or, as it is called, generated. Upon considering these Circumstances, it appears most probable that fixed *Alcaline Salts* actually attract Air, and unite it with themselves so strongly, that it is not to be dislodged, till the Texture of the Salt is destroyed by the Effervescence upon mixing it with an Acid.

These pure, acrid, fixed, *Alcaline Salts*, if they are mixed with the purest Alcohol, when they come very hot out of the Fire, attract it, and unite with it; but if there is the least Mixture of Water, either in the Salts or the Alcohol, then the Salts repel the Alcohol, nor can they be united by any Art whatever. In this Manner, therefore, pure, fixed *Alcaline Salts* divide strong Spirit of Wine into two Parts, that are not afterwards miscible with each other, that is, into a Water saturated with the *Alcaline Salt*, and into a pure Alcohol, which swims at the Top. And thus, again, plainly appears the reciprocal Attraction betwixt Water and fixed *Alcaline Salts*: Take a Pint of the purest Alcohol, mix with it a small Quantity of Water, and then add a dry *Alcaline Salt*, and the *Alkali* will in an Instant draw into it that little Portion of Water, and will appear in the Form of a thick Oil about the Sides of the Glass; and, at the same Time, the Combination of the Alcohol and Water will be utterly prevented.

These *Alcaline Salts* act also upon vinous Spirits in another Manner: For, as every Spirit drawn by Fire, from Wine of any Sort, has always a volatile Acid intermixed with it, the Acid being greedily attracted by the *Alcaline Salt*, the Spirit by this Means becomes much more pure, when freed from the Acid which adhered to it, and consequently will be very different, both in its Nature and Virtues, from what it was before this Operation. And the *Alkali* itself will also, at the same Time, be intirely altered, and become a Salt compounded of an Acid and *Alkali*, inasmuch that, if it is perfectly saturated in this Manner, a Salt perfectly neutral will be produced.

These Observations direct us to a Method of preparing a pure Alcohol, without Distillation, or any Assistance from Fire; for add a sufficient Quantity of Pot-ash to common Spirit of Wine, and stir them about till they are thoroughly mixed together, the Water will be attracted by the *Alcaline Salt*, and the Alcohol will swim at the Top, which, by a gentle Decantation, will come off good the first Time. If any Doubt remains, whether it is quite pure, or not, put some more Pot-ash into the Alcohol thus prepared, and by stirring them about, and then pouring the Liquor off, as before, it may be rendered so. In this Operation, however, the Spirit of Wine always discovers an Oil, which before appeared neither in the Spirit of Wine, nor the *Alcaline Salt*, but is generated when they are thus mixed together.

Another Property of *Alcaline Salts* is to unite intimately with distilled vegetable Oils: For if the most acrid, pure, dry *Alcaline Salt* is thrown very hot into a distilled Oil, it attracts the Oil greedily, with a considerable hissing Noise, and unites it so with its own Substance, that there is immediately formed a Kind of Soap, and the Oil is more firmly united to the *Alcaline Salt*, and the Soap is rendered more perfect, if the Mixture is set in a subterraneous Place; for by this Means both of them become semi-volatile, and form a Mass dissolvable in Water, which is endued with excellent medicinal Virtues. This is the *Ens parvum Sapientum*, the *Sapo Helmontianus*, the *Sol-Volatile Tartari* of Starkey, and the *Corrector* of Matthews. It was formerly in great Reputation, first in England, and afterwards all over Europe; for it powerfully resolves almost every Kind of viscid Concretion that is generated from the Humours of the human Body: Hence it incises and attenuates the tenacious Concretions that obstruct the Vessels, and at the same Time it gently stimulates the Vessels themselves; and thus, by acting both upon the Solids and Fluids, it promotes the Secretions by Sweat and Urine, and by these Evacuations carries off the Cause of many chronical Distempers. This Soap also intirely alters the Nature of many Simples, when digested with them, and hence, depriving some of their Virulence, imparts to them Virtues very different from what they naturally possessed. The Chymists, however, as is usual with them, have been too lavish in the Praise of this Medicine, which they have extolled as an universal Remedy. But it must be observed, that this Combination of a fixed *Alcaline Salt* and distilled Oil can never be brought about, if the least Portion of Water adheres either to the Salt or Oil; and for this Reason it is necessary the Salts should be hot when mixed with the Oil. It will even hinder

the Success of the Operation, if a small Portion of the *Alcaline Salt* stands above the Oil in the Vessel, and thus, by being exposed to the Air, grows ever so little moist.

Fixed *Alcaline Salts* are easily united also with the expressed Oils of Vegetables, or Animals, as is daily seen in their Combination into artificial Soap by the Assistance of quick Lime, Water and Fire.

But *Alcaline Salts* remarkably attract all Kind of Acids whatever, whether animal, vegetable, or mineral, and that whether dry or moist, pure or diluted. And this Force, with which *Alcalies* thus attract Acids, is incomparably greater than that with which they attract Water: For in this Action, by which they unite these Acids with themselves, they violently expel the Air that resides both in the Salt and Acid, whence arise such Numbers of Air-bubbles, which suddenly appear, and burst. This Union also makes them repel even Water, and when they are thus saturated, they will easily suffer themselves to be dried, or deprived of their Water, which before, when they were separated, they retained most tenaciously. Pure Oil of Vitriol, for Instance, when it is alone, can scarcely by any Art be utterly deprived of its Water; Oil of Tartar not without a great deal of Difficulty: And yet, when you mix them together, the Water is expelled in such a Manner, that a Salt almost dry appears in the Vessel under it, as is evident in the Preparation of Tartarus Vitriolatus. The same is true also of other Acids, when they are combined with an *Alkali*. This Power however, by which *Alcalies* attract Acids, is limited to certain Bounds; hence there appears a great Diversity among them, though this, indeed, seems more owing to a Difference in the Acids, than in the *Alcalies*. Upon this Subject the illustrious Homberg has communicated to the World many useful Observations, some of which are of Importance enough to deserve inserting:

One Ounce of Salt of Tartar absorbed all the Acid from fourteen Ounces of the best distilled Vinegar; and hence, after it was dried, it was increased in Weight three Drams thirty-six Grains; the remaining Part of the Vinegar was mere insipid Water. By this Means, then, we discover the Proportion there is between the Acid, and the Water of the Vinegar.

The same Quantity of Salt of Tartar absorbed all the Acid from two Ounces five Drams of Spirit of Salt; the Increase of Weight, when dried, was three Drams fourteen Grains.

An Ounce of Salt of Tartar absorbed all the Acid from one Ounce, two Drams, thirty-six Grains of Spirit of Nitre; the Increase of Weight was three Drams ten Grains.

The same Quantity of Salt absorbed all the Acid from one Ounce, two Drams, thirty Grains of Aqua Fortis; the increased Weight was three Drams six Grains.

From five Drams of Oil of Vitriol an Ounce of Salt of Tartar absorbed all the Acid; the Increase of Weight in the dried Salt was three Drams five Grains.

As these are the principal Acids, we may infer, First, that in acid Liquors, though various with Respect to their Bulk, whilst united with their Water, yet the acid Principle has nearly the same Weight in all. Thus Vinegar, which is the lightest of all these Acids, increased the Weight of the same Salt of Tartar, as much as the Oil of Vitriol, which is the heaviest and strongest. The same too is true with Respect to the other Acids, the Difference between the greatest and least Increase of Weight being no more than thirty-one Grains, and that only in the Vinegar, and this because the Tartarus Regeneratus, that is, the compound Salt formed by the Union of the Salt of Tartar and Acid of the Vinegar, is not dried without a vast deal of Difficulty.

Secondly, Acids seem to differ principally as to the Quantity of Water they are diluted with, since the pure Acid, when it is extracted, discovers always the same Weight. If fourteen Ounces, therefore, of the strongest Vinegar could by any Contrivance be reduced to five Drams, by separating the Water from it only, and collecting the Acid into a smaller Compass without altering it, it is possible that the Vinegar thus reduced in Bulk would be as strong as Oil of Vitriol. It is however certain, that it would be then capable of saturating the same Quantity of *Alcaline Salt*.

Thirdly, We hence perceive, how great a Part of these acid Liquors is Water.

Fourthly, It is probable, that if these acid Salts could be obtained pure without any Water at all, they would then appear in a solid Form. This, however, has never yet been accomplished: Very intense Cold has come nearest it of any Thing, but not quite compleated it. Hence also we may conceive what surprising Effects *Alcaline Menstruums* may produce, when they act upon Substances that have any latent Acid in them, or upon those that are actually consolidated, and held together by an Acid; and hence, when this Acid is absorbed, they fall again into their constituent Elements.

When this Assusion of an Acid to an *Alkali* is performed gradually and cautiously in warm Liquors, and in a large Vessel, if at the same Time the Vessel is shaken after every Instillation of the Acid, the Mixture at last arrives to such a Temperament, that there will be no farther Ebullition: And this is called the *Point of Saturation*. If Acids are after this added, no more Agitation

tion will be excited, than there is upon mixing Water with Water : And then the Compound thus produced is neither *Alcaline* nor *Acid*, but *neutral*, formed by the Union of both. Hence *Acids* have been called Males, and *Alcalies* Females, and the Compound of them both Hermaphrodites : The *Alkali*, the Vacuum ; the *Acid*, the Implant : The *Alkali*, the Chaos, and the *Acid* the impregnating Spirit.

The violent Ebullition and Effervescence, that appear upon the Mixture of an *Alkali* and an *Acid*, whilst the Air and Water are forcibly expelled, may possibly arise, because these Bodies impetuously drive out whatever lies betwixt them, when they rush strongly into mutual Contact : And if so, this Ebullition and Effervescence do not arise from any Disagreement, but from an Association of Principles. Hence the following Queries will naturally arise : 1. Whether *Acids* abound plentifully with Air, whilst *Alcalies* contain none at all ? So far is certain, that the strongest *Alkali*, taken very hot out of the Fire, and so probably deprived of all its Air, will, if it is thrown into an acid Liquor, produce a prodigious Effervescence, and a great Quantity of Air will be generated. Hence may we not arrive at the true Reason, why *Acids*, when they are predominant in animal Bodies, are productive of so much Flatulency ? Do not neutral Salts, produced from a Combination of *Alcalies* and *Acids*, lose the greatest Part of their Air ; and are they not for this Reason found to be very little flatulent in the human Body ? Are not acid, or at least acefcent Bodies, the only Substances which are disposed to ferment, because of the latent Air they contain ? And is not this latent Air the Source of that prodigious Quantity of Air, which is generated by Fermentation ? Does Fermentation therefore naturally tend to the Generation of *Acids*, whilst an intense Fire produces *Alcalies* ?

From what has been said it appears, that amongst natural Causes, by which Motion is excited in the Universe, we must reckon *Alcalies* and *Acids*, at the Time when these are mixed together, which Motion ceases, as soon as ever this Combination is completed.

The Motion thus excited seems of considerable Importance in Vegetation, or rather in preparing the Earth for it. People concerned in Husbandry are sensible, that frequent Ploughing or Digging the Earth mellows it, as they call it, and renders it fertile ; or, to speak more philosophically, disunites the Parts of the Earth, which otherwise cohere together, and form large Glebes, and reduces them into small Particles, better suited to the subsequent Solution they are to undergo, in order to the Production of a Plant. Now when the Earth is once furnished with an Alkaline Salt, and that is intimately united with the earthy Particles, which soon happens, because these Salts, attracting the Water floating in the Air, run into an Oil per Deliquium, and sink into the Ground ; the same Salts attract also the Acid of the Air, till they are saturated, and both together rendered neutral. Whilst therefore this Neutralization is effecting, an Effervescence is made leisurely and by Degrees, as the Alkaline Salt imbibes the Acid. Hence Motion is excited in the Parts of the Soil which were impregnated with the Alkali, and by this Motion the Particles of the Earth are separated from each other, more effectually than either by Ploughing or Digging. This Separation is an excellent Preparative for a future Solution, and indeed is one Step towards it, since the Solution of a Body is only the Reducing it into Particles fine enough to float in the Menstruum that dissolves it, and small enough to be transparent, and consequently not visible.

There can be no Doubt, but that in the Action of these *Alkaline* Menstrua upon *Acids*, the Water is expelled out of them, as well as the Air, when they thus unite together ; for though they are perfectly fluid, when they are mixed, yet they harden in the very Act of Combination, into little saline Glebules, and appear in the Water in the Form of pellucid Crystals, the watery Liquid being driven out, and swimming at the Top. And when the Saturation is compleat, the Water may be separated pure, and without any saline Taste, and then the Remainder is easily dried into the Form of a white, farinaceous, opaque Powder, and that too by a gentle Heat, whereas the Parent *Alkali* and *Acid*, by whose Combination they are produced, either cannot be dried at all, or not without the greatest Difficulty.

It is farther remarkable, with respect to these compound Salts thus prepared, that it is extremely difficult to separate again the *Alkali* from the *Acid*, so as to procure either of them pure, by the Assistance of Fire only. Sal Ammoniac, for Instance, made by a Combination of *Alkaline* Spirit of Sal Ammoniac, and Spirit of Sea-Salt, may be sublimed, by exposing it to a sufficient Degree of Fire ; but it will not be thus possible to separate it into the saline Principles of which it was compounded. The same is true with Regard to Tartarus Vitriolatus, Sal Marinus Regeneratus, Nitrum Resuscitatum, Tartarus Regeneratus, and others. There are, however, some Methods discovered, by which this Resolution of compound Salts, into their constituent *Alkaline*, and *Acid* saline Principles, may be accomplished, and the Knowledge of these will make us acquainted with some of the most secret Mysteries of Chymistry. In order, therefore, to arrive at the Knowledge of these, it is necessary to examine some farther Properties of *Alcalies*.

Alcalies, therefore, though they attract all known *Acids* ; at the same Time it is remarkable, that they attract some, much more powerfully than others. This Assertion is abundantly confirmed by Experiments. Thus, if upon an *Alkali* perfectly saturated with Vinegar, or upon Tartarus Regeneratus, Spirit of Salt, or Nitre, or Sulphur, or Vitriol is poured, then the latent *Alkali* will attract into it that *Acid*, and repel from it the *Acid* of the Vinegar with which it was before saturated ; and hence a Liquor, nearly of the Nature of Spirit of Vinegar, may be afterwards drawn from this Compound with a moderate Heat, there remaining a considerably fixed, regenerated, nitrous Salt at the Bottom of the Vessel : Again, if Spirit of Nitre is poured upon an *Alkali*, saturated with Spirit of Salt, an Aqua Regia will arise in Distillation ; and a nitrous Salt will be left at the Bottom ; but much changed from its former Nature. On the contrary, if Spirit of Salt is poured upon an *Alkali*, saturated with Spirit of Nitre, the Mixture will in Distillation also yield an Aqua Regia, and the Salt that remains will be of a nitrous Nature, and somewhat inflammable ; however of a Nature very different, both from Sea-Salt, and Nitre. In both these Cases, as there is no considerable Difference betwixt the *Acid* of Nitre, and that of the Salt, with respect to their Strength, each of these *Acids*, in some Degree, dislodges, and expels the other, by which means they rise mixed together ; and both of them also remain united with the *Alkali* in the Residuum.

Pour Oil of Vitriol upon an *Alkali*, saturated with Spirit of Nitre ; a pure Spirit of Nitre is immediately expelled, and the *Acid* of the Vitriol unites with the *Alcaline* Part of the Nitre, and forms a Salt at the Bottom, somewhat of the Nature of Tartarus Vitriolatus, though different from it in some of its Properties ; it has, however, scarcely any Thing in common with Nitre. And, lastly, if Oil of Vitriol is poured upon facitious, or natural Sea-Salt, a very volatile *Acid*, fuming Spirit of Sea-Salt, will instantly arise, endowed with almost all the known Virtues of Spirit of Salt, except that it fumes more, is more volatile, and its Vapour is noxious and suffocating, till it is corrected by repeated Depurations. All these Experiments, therefore, certainly prove that those *Acids*, which are naturally diluted with a less Quantity of Water, have a greater Power of uniting themselves with *Alcalies*, than those, which are naturally diluted with a greater. And this Rule, so far as has yet appeared by Experiment, may be laid down as general, that the stronger *Acid* always expels from the *Alkali* that which is weaker and which is the least powerfully attracted by the *Alkali*. And then the stronger *Acid* always unites with that *Alkali* from which the weaker was expelled, and takes Possession of the Place in which that resided.

Again, the Salt thus generated, losing the Disposition it had acquired from the first and weaker *Acid*, which is now removed, puts on very nearly the Nature of that Salt, from which the last and stronger *Acid*, which is now united with the *Alcaline* Part, was drawn. It must, however, be confessed, that there is always some remarkable Difference betwixt the Salts thus produced, and the native Salts from which those stronger *Acids* were procured. Thus, for Instance, the Sal Mirabilis Glauberi, which is prepared by a Distillation of Sea Salt, with the best Oil of Vitriol, is of a very different Nature from that Tartarus Vitriolatus, which is obtained by a Saturation of Oil of Tartar with Oil of Vitriol. This is also true, with respect to other compound Salts. Thus the Salt which is procured by distilling Glauber's Spirit of Nitre, is intirely different from the Sal Mirabilis of the same Author, though both these are supposed to be produced from the same *Acid*, and the same *Alkali*. This Rule therefore, which has been laid down by the most eminent Chymists, *That Acids always convert Alcalies into their Nature in such a Manner, that from these Compounds, may be constantly regenerated those Salts, which before yielded those Acids*, is too general, and must be understood with some Restriction.

It is farther remarkable, that when these stronger *Acids* thus poured upon compound Salts, expel thence the weaker *Acids* which were united with them before, and join with the remaining *Alcalies*, this new Combination is effected without any considerable Effervescence or Conflict : For the first and weaker *Acid* quits the *Alkali*, and the last and stronger takes its Place, without any great Ebullition, notwithstanding there arises such a prodigious Emotion, when a pure *Alkali* is mixed with a pure *Acid*. Nor does it appear, that any Air is generated by this Union, though in the other Case it was expelled in so large a Quantity. It is probable, therefore, that the Effervescence which was excited in the first Saturation of the *Alkali*, had expelled all the Air, so that now the new *Acid* does nothing more than enter into the saturated *Alkali* thus deprived of its Air, and remains there, without either expelling or attracting any Air ; and it seems a farther Confirmation of this, that if the *Acid* which is expelled by a stronger *Acid*, is mixed with another *Alkali*, it will with that raise a violent Effervescence, so that a great Heat, Noise, and Generation of Air will be produced, whilst in the compound Salt, there was very little of any such Appearances.

What has been said above, with respect to fixed *Alcaline Salts*, will be sufficient to give a general Idea of their Nature and Properties. It remains, that I give the different Methods of preparing fixed *Alcaline Salts* for medicinal Uses, and specify the Virtues they are supposed to exert in and upon the human Body. This I shall do principally from Boerhaave, because he has given the particular Processes with more Exactness, and been more just in his Reflections upon them, than any preceding Writer upon these Subjects.

I must, however, take Notice of two Mistakes which the above-mentioned Author seems to have made, in regard to the Theory of these Salts, and which he is so solicitous of propagating, that he takes all Opportunities of repeating them.

The first is, when he tells us, that fixed *Alcaline Salts* are never produced naturally, but are only generated by Fire from Vegetables. This is evidently an Error, because, according to the best Accounts we have of the Egyptian Natron, it agrees with fixed *Alcaline Salts* in most, or perhaps all its Properties. Now this is a native Salt, procured either from the Earth by boiling it in Water, or else by evaporating the Water of certain Ponds, or Lakes, to Dryness. And we have an Account of an Earth which is got near Smyrna, which, by boiling in Water, and a subsequent Evaporation, yields a Salt very little, if at all, different from Pot-Ash, and which may for all Purposes be used in its Stead. And the Heat of boiling Water is in no Instance sufficient to generate an *Alcaline Salt*.

The second Mistake is, when he inculcates, that the fixed *Alcaline Salts* of Vegetables of all Kinds are exactly alike, and nothing different, either in their physical Properties, or medicinal Virtues; though he confesses, that the Salts of different Plants, impart a different Colour to the Glass which is made from them, which proves, at least, some Variety. He farther says, that a Portion of the vegetable Oil always adheres to the Salt, notwithstanding the excessive Fire they have endured; as therefore the Oil of every Vegetable differs from that of every other Vegetable, this Circumstance must make some Difference in the fixed Salt. And in this I have the illustrious Hoffman's Opinion in my Favour.

If this Controversy is brought to the Test of Experience, I am certain it will be determined against the above-mentioned illustrious Boerhaave. For the Salts procured from some Plants will, even when mixed with an Acid, and saturated, cause a great Heat and Sensation of Burning at the Stomach, whilst Salt of Wormwood saturated with the same Acid, and given a few Hours after, will cause no such Uneasiness, but have a much better medicinal Effect. And this is so remarkable, that I have frequently discovered by the Effect, that other Salts have been substituted in the Room of Salt of Wormwood. And from the various Effects I have seen produced from the fixed Salts of different Plants, I am convinced that it is as much impossible to procure a Salt endued with exactly the same Virtues as Salt of Wormwood from any other Plant, as it is to produce a Plant of Wormwood from the Seed of any other Vegetable. And I believe the same may be said with respect to the fixed Salts of Broom, Bean-stalks, Mint, Fern, and most other Plants. Though at the same Time it must be confessed, that the fixed *Alcaline Salts* of all Vegetables agree very much in all their sensible Qualities; but as Nature has Ways of acting, to which we are Strangers, and draws mechanical Properties from Sources to us unknown, it is dangerous, as well as imprudent, to determine any Thing from Theory, before it is confirmed by a Multitude of Experiments.

As *Alcaline Salts* made after the Manner of Tachenius should, by the Character Boerhaave gives of them, be of great Importance in Physic, I shall begin with those.

THE METHOD of preparing a fixed ALKALINE SALT from BURN'T VEGETABLES, after the MANNER of TACHENIUS.

1. Put into a large and deep iron Frying-pan, a Quantity of the Leaves and Stalks of clean, dry, fresh, green Rosemary; upon this lay an iron Plate, in such a Manner, that it may compress the Rosemary, and perfectly cover it all over. Then place the Pan upon a gentle Fire, which increase gradually, till the Vessel grows red hot. The Plant will then smoke, diffuse a Smell, and be converted into a Coal. Then add more fresh Rosemary, cover it, compress it down, and proceed as before, till this is also turned into a Coal. Repeat this till a Quantity is procured, sufficient for the Purpose intended. During this Operation, take all possible Care that the Herb does not flame, which is best prevented, by covering it in such a Manner, that it has no Communication with the Air, for if that comes to it, it bursts out into a Flame, which in this Case does Harm. This is called the Ustulation of a Plant, and the slower and more gradually it is performed, the Operation will be proportionably more perfect. The burnt Herb will be very black, brittle, and bitter; and boiled in Water, the Decoction scarcely discovers any Salt in it, but tastes burnt and bitter, and is sudorific; so that in the Ustulation of a Plant into a black

Coal, scarcely any Salt is discoverable, either by the Lixivium made from it, or by the Taste of the Coal.

2. When this first Part of the Process is rightly performed, take away the iron Plate which covered the Rosemary, and let the Frying-pan, with the ustulated Herb, remain on the same Fire; upon which, as soon as ever the Air comes to it, the Herb, which is now become black, will take Fire, and would very easily rise into a Flame; but this must here be carefully prevented, and the Ignition must be sustained by a Fire accommodated to the Purpose. When the upper Part, which is contiguous to the Air, has for some Time sparkled, its Fire goes out, and then it immediately grows white. But the Parts of the ustulated Vegetable which are covered with these white Ashes, will still remain black, and on Fire, and therefore all the Herb must be gently stirred about with an iron Rod, till the whole Mass has in every Part been successively on Fire, and, by this continual Agitation, been for a sufficient Time exposed both to the Air and Fire together, so as to be converted into one homogeneous white Mass, which is then but in small Quantity, ponderous, and equally white. And when this is done, it is impossible to raise a single Spark in the Mass by the strongest Fire: Though if there is but one black Leaf in it, that, as soon as ever it comes into Contact with the Air, will take Fire in the same Manner as the rest did. When the whole Herb is thus reduced to a Whiteness, it has then an acrid, and somewhat urinous, saline Taste, which never appears in the Herb, as long as that black Part, which is a pure inflammable Oil, continues to adhere to it; but as soon as ever this is intirely consumed by the Fire, then the Salt, which is not wasted by the Fire, begins to discover itself. Hence it appears, that the Consumption of the Oil is necessary, before the Salt can be procured.

3. Let the Ashes thus prepared, be left an Hour or two upon the Fire, so as to be kept constantly red hot, and let them be continually stirred with an iron Rod; and this compleats the Calcination of Herbs for Tachenius's Salt. In the first Part of this Operation, the suffocated Action of the Fire, after it has expelled the Water, intimately unites the saline and oily Principles, into a sulphureous saline Concrete, to speak in the Language of the Chymists, which is in some Measure of a saponaceous Nature, but which, at the same Time, has a large Admixture of a very subtile Earth.

4. Put the Ashes thus procured into a clean iron Vessel, with six Times their Weight of pure Rain-water, and boil them, stirring them often with an iron Ladle, then the Liquor that swims at the Top will be acrid, lixivious, and saline, and will have drawn a great Part of the Salt out of the Ashes, leaving the Earth at the Bottom. Let this be poured off, and filtered boiling hot, till it becomes perfectly limpid, and then let it be set by, under the Title of a *Lixivium* for Tachenius's Salt. If the Earth that remains at the Bottom of the Vessel, or in the Filter, is boiled again, with fresh Water, it will still yield a farther Lixivium; but the Taste of this will more resemble the Acrimony of Lime, and will contain less Salt: This may be filtered too, and mixed with the former. Let the Earth that is left behind be boiled with more Water, and the Liquor poured off as before, and this be repeated, till the last Water comes off as insipid as it was put on. These last Lixiviums may be thrown away as of little Use. Let the Earth that remains be shook about with Rain-water, let this, when it is become turbid, be poured off, and proceed in this Manner, till the Sand, which alone will sink to the Bottom, is perfectly separated from the true Ashes, which last will be mixed with the Water. Let these turbid Waters be mixed together, and suffered to settle, and there will fall an Earth to the Bottom, which being dried, is a pure vegetable, elementary, almost virgin Earth, very proper for making Cupels.

5. Let the pure Lixivium, above-mentioned, be evaporated in a clean iron Vessel, till it is become quite dry, keeping it continually stirring towards the End of the Process to prevent the Salt from adhering too much to the Vessel, and by these Means, is procured a brownish Salt, that will be acrid, and somewhat *Alcaline*, and which will gradually dissolve in the Air; but yet not so readily, as a perfect *Alkali*: The browner this Salt is, the more rightly will it be prepared; for it will have so much the more of the Oil in it.

6. If this Salt is put into a clean Crucible, and set in a Fire every Way surrounding it, till the Crucible is red hot, it will easily flow like Water, much sooner than a true fixed *Alcaline Salt*; and then it must be poured out upon a clean brass Plate in Form of little Cakes. And thus you have the pure fixed vegetable Salt of Tachenius; which may be rendered still purer, by exposing it to the Moisture of the Air, or dissolving it in Rain-water, and then filtering the Liquor, and letting it stand quiet, for a sufficient Time, let it be inspissated till a Pellicle appears on the Surface; and then, by setting it by in a still Place, it will shoot into saline Globules, which are Crystals, of all others, the most pure. In these there is not contained an acrid *Alkali*, but the Oil of the Plant, being united with the *Alcaline Salt*, renders it more mild. It is observable, that the Colour

four of this Salt will be very easily altered, if a Coal happens to fall into it whilst it is melting, for then it immediately acquires a leaden Colour, which will vary, according to the Quantity of the Coal that gets amongst it.

OBSERVATIONS on the preceding PROCESS.

1. These Salts are neither acrid, nor igneous, but are a saline Compound of an Oil closely united by the Fire with an acrid *Alkali*; and they differ from an acrid, *alkaline*, caustic Salt, in Proportion, as the Herb undergoes a longer Ustulation, and as the Air is kept from them during the Operation. And by these Means their medicinal Virtues too, are increased in Proportion.

2. They are not, therefore, in their Nature so contrary to an Acid, as to destroy so great a Quantity of it, as pure *Alkalies*. If they are properly prepared, they may in some Measure supply the Want of sea and fossile Salt for the common Uses of Life, as has been observed before from Varro.

3. If these Salts are put into open Vessels, and are exposed to the external Air for a considerable Time, they will attract the Water from the Air and liquefy; but slower, and with more Difficulty, than a pure *Alkali*; but in Water they dissolve immediately.

4. They will readily mix with all the Humours of the human Body, even with the oily Parts and the inspissated Bile by the Assistance of the vital Heat, and the Action of the circulating Fluids.

5. Hence they are capable of penetrating into the sanguiferous, serous, lactiferous, lymphatic, urinary, sudoriferous, and bilious Vessels; but they cannot penetrate into the Nerves.

6. When they are mixed, and diluted with the animal Fluids, they are able, by the Concurrence of the natural Heat, and vital Actions, to resolve the principal Concretions that are formed in our Humours; especially, if they are assisted by Friction, Riding, or other suitable Exercise. They will not however dissolve Stones in the Body, as a Menstruum, but will wear them away, by the mechanical Motion, and Attrition, which they increase in the Body, and determine particularly to the urinary Passages. Disorders in the Juices of the Nerves, however, they cannot reach, and therefore are not capable of curing a genuine Gout; otherwise, when they are diluted with warm Water, and assisted with Motion, they become considerably penetrating, even into the most intimate Parts of the Body.

7. When these Salts are received amongst, and mixed with our Humours, they there act with an Acrimony which is not destructive, but which however renders the Juices more stimulating than they are in their natural soft and mild State, and hence they irritate the sensible Parts of the Nerves, and stimulate them to the Performance of their Vibrations with a greater Force than usual; and on this Account, they are of great Importance where a Stimulus is wanting in a languid Habit of Body, in slow, hypochondriacal, and hysterical Disorders, and others that arise merely from Inactivity.

8. They therefore produce very considerable Effects, by opening the obstructed Vessels of the Body, both as they agitate the whole nervous System, and, at the same Time, dissolve the concreted Fluids, and by their Weight also, which is greater than that of our native Salts, urge all the animal Functions with a Force greater than that which is usual, without their Assistance.

9. They act therefore by promoting all the Secretions, and Excretions, for at the same Time that they render the Humours sufficiently fluid, and free the Vessels from Obstructions, they exercise a Stimulus both upon the Humours and Vessels at the same Time; and thus they equally excite the true Causes of the Motion of our Fluids through their Vessels, on which depend all the Secretions and Excretions in every particular Part of the Body.

10. Hence it appears, why these Salts are a Sudorific; for since it is certain, that the Sweat naturally contains in it the native Salts of the Body, and deposits them on the external Surface of the Skin, by Means of small Arteries which open there, these Salts, when mixed with the circulating Juices, will readily find a Way to the same excretory Arteries, and bring with them their Power of increasing the Secretions; and this is confirmed by Experiment. These Salts in a particular Manner augment the Discharge of Urine; for the Author of Nature has formed the Kidnies principally to carry off the Salts abounding in the Humours, that it may be evacuated out of the Body, to which otherwise it would prove pernicious. This the Urine, of all our Humours much the saltiest, sufficiently evinces. And hence the Efficacy of these Salts is never more manifest than in their Operation by Urine, and at the same Time purging the Humours from any noxious Impurities with which they are loaded. They help also to forward the Discharge of the harder Excrements by Stool, whilst they resolve them, open the Passages, and stimulate the too tardy Intestines to a quicker Performance of their Offices. In melancholic Cases, attended with considerable Costiveness, we find no Medicines more effectual than these Salts, if directed in a proper Manner, and Quantity, and continued for a sufficient Time. And in this Case, they have this particular Excellence, that when they

are left off, the Intestines continue regularly to discharge their Contents without any remaining Costiveness, which is not the Case with Respect to any other Cathartic whatever. The Liver, Spleen, Gall-bladder, biliary Duets, and Vena Porta, which together constitute the Laboratory of the bilious System, cannot be more effectually purged and freed from Obstructions, or noxious Humours, than by these Salts. And by this lixivious Soap, the viscid and tenacious Obstructions in the Primæ Viæ, that is, in the Stomach and Intestines, are dissolved, and properly prepared for Excretion, without Danger or Violence; so that upon the Whole by this Means we arrive at that Coction or Preparation of the Humours, recommended by Hippocrates, as necessary to their successful Evacuation.

11. From what has been said upon the Subject of these Salts, it appears, that they are excellent in all chronical Distempers, where there is a mere Torpor, or Inactivity of the Spirits, too great Laxity of the Fibres, and a sluggish Viscidity of the Juices without any Tendency to a putrid Acrimony, an Acidity from a Weakness of the vital Powers, or a Coagulation from a prevailing austere or acid Acrimony. If, therefore, we consider, what a great Number of Diseases depend upon these Causes, we shall be convinced, that many chronical Distempers may be cured by Salts prepared in this Manner, which destroy Acids, and convert them into neutral Salts; which last stimulate the Solids, and dissolve Concretions in the Fluids, by new Properties they acquire the Moment they are rendered neutral. We must not, however, conclude from hence, that these Salts are always salutary, and never noxious; for in Cases where the Humours are putrid, bilious, alkaliescent, or are moved with too great Velocity, and hence acquire too much Heat, these Salts only add Oil to the Fire: Nor are they less hurtful to Persons whose Constitutions are so tender, that they are not able to bear the Effect of them; for then the Motion they excite proves destructive. They are also noxious where Salts already abound too much in the Body.

THE METHOD of using these SALTS in MEDICINE.

1. They ought to be exhibited when the Stomach is empty, and has completed the Digestion of the Aliment last taken, and consequently about ten Hours from the last Meal. The Dose ought to be varied, according as the Circumstances of the Patient determine it; but in general they may be taken from four Grains to two Drams, or more, which must be left to the Judgment of the Physician.

2. They should be diluted with a large Quantity of Water, lest, if they should be taken too naked, they should injure the Fauces, Œsophagus, and Stomach. Let a Dram therefore of this Salt be dissolved in nine Ounces of common Water, and then it will in some Measure operate like mineral Waters, which act by a small Quantity of fossile Salt dissolved in a great Deal of pure Water.

3. If the Physician's Intention is to purge, let the Patient take, going to Bed, nine Grains of purified succotrine Aloes made into three Pills; or half a Dram of Pil. Ruf. and the next Morning let him rise early, and walk a little in a coolish Air, taking particular Care not to raise a Sweat, and whilst he is walking, let him take a proper Quantity of these Salts, divided into five or six Doses. The Effect of this will be excellent, for it will purge and take away all Heaviness, without any Diminution of Strength; thus becoming an exceeding proper Remedy for the Costiveness of sedentary learned Men, and extirpating Disorders so deeply rooted, that no other Purges whatever will have any Effect upon them.

4. But if the Intention is to purge the urinary Passages, and sanguiferous Vessels, proceed as is above directed, but omit the Aloes in the Evening, mean Time let the Region of the Loins, and Hypogastrium be kept warmer than the other Parts of the Body, and let the Patient now and then drink a Draught of warm Tea or Coffee.

5. If the Design is to raise a Sweat, let the Patient take these Salts in Bed in a Morning, in the same Manner as before directed, and, after each Dose, let him drink some mild Sudorific, as a Decoction of Burdock-Roots, of the five opening Roots, of Sanders, or Sassafras-wood, Tea, or Coffee; and, being covered with a sufficient Quantity of Clothes, let him promote Sweat according to the Nature of his Distemper.

6. For the Cure of Autumnal Tertiars, or Quartans, purge two or three Days successively, according to the Rules laid down above. Then about four Hours before the Fit is expected, let a gentle Sweat be raised in the Manner just now directed, taking Care that the Sweat may be the greatest about the Time of the Access of the Fit. In this Manner very obstinate Intermittents are happily cured. And, in this Respect, a Lixivium of these Salts excels even the Acidulæ, and Spaw Waters.

These Salts may as easily be procured from a dry Vegetable, and indeed, with something less Trouble; if, however, the Plant is so old and dry, as to be carious, it will yield little or no Salt.

Boerhaave is of Opinion, as I observed before, that it is of no Importance from what Plant this Salt is prepared, because, according to his Sentiments, Plants thus treated lose their proper Nature, and do not in the least preserve their specific Properties. But as so large a Portion of the vegetable Oil adheres to Salts prepared in this Manner, these above all the *alkaline* Tribe should seem to be in some Degree impregnated with the Virtues of the Parent-Plant. I will not however be positive, that they actually do retain the medicinal Qualities of the Vegetable they are prepared from; but I will venture to affirm that the fixed *Alcaline Salts* of different Plants vary both in Respect to their Effects as Remedies, and their Action upon other Bodies in chymical Operations, that require great Accuracy.

Rosemary is in the preceding Process given for an Example, but a Salt may by the same Management be procured from most Vegetables. There are, however, some preferable to others. Those which I should make Choice of, for medicinal Purposes, are Wormwood, Broom, Bean stalks, Mint, Carduus Benedictus, and all of the Thistle Kind.

The above-described Method of making fixed Salts from Vegetables with a View to Medicine, is much preferable to that commonly pursued, on many Accounts, for as the Oil is preserved in some Measure, they must necessarily be more saponaceous, and consequently more resolvent; they are also less acrid.

The common Way of making fixed Salts is by burning the Vegetable freed from the Dirt that adheres to it, in an open Fire, to white Ashes; these are then boiled in Water, till all their Salts are dissolved; this Water is filtered, and after that evaporated to Dryness, taking Care, especially at the latter Part of the Process, to keep the Lixivium continually stirring; what remains in the Vessel after Evaporation, is the fixed *Alcaline Salt* of the Plant, which may be again dissolved, filtered, and then evaporated to Dryness; and by this Means the Salt may be rendered more white and beautiful, but at the same Time much worse for medicinal Uses, because by every Solution, and Filtration, it loses some of its adhering Oil, which gives it a brown Colour. Those therefore who boast of the Whiteness and Beauty of these Salts, either intend a Fraud, or are ignorant of their real Virtues.

THE SEPARATION OF A BITTER, CRYSTALLINE, HARD, FIXED SALT, that is SUBVITRESCENT, and not *ALCALINE*, from a FIXED *ALCALINE SALT*.

Take six Pounds of the best Pot-ash, and dissolve it in twenty Pints of cold Rain-water in a glass Vessel, stir them well with a Stick, and then let them stand quiet. When the Parts not dissoluble have sufficiently subsided, pour off gently the clear Lixivium, and there will be found at the Bottom with the Faeces a great Number of very small Grains, of an Ash-colour, and bitter Taste, which have almost the Hardness and Brittleness of Glass, and in which nothing of an *Alkali* can be discovered. There is another Method of separating these crystalline Glebules, as follows: Take six Pounds of the best Pot-ash, and dissolve them in a brass Kettle, by boiling them with four Times their Weight of Water. Strain this Lixivium, whilst boiling hot, through a linnen Bag, that it may be perfectly pure whilst it continues very hot. Put it then into a hot, moist, clean, glass Vessel, and so leave it. Immediately a Crust somewhat opaque, of a brownish-ash Colour, begins to fix to the Bottom and Sides of the Vessel, which increases, and grows thicker continually. When the Lixivium has stood thus for some Time, and ceases to deposit any more of this Salt, pour off accurately all the pure Lixivium, and at the Bottom there remains a Salt, like that procured by the former Method, but purer, and in a larger Quantity. Take the Lixivium thus freed from this Salt, and inspissate a little, and set it by, it will then yield perhaps a small Quantity of the same Kind of Salt, but it will afterwards produce no more, so that the *Alcaline Salt* contains but a certain limited Quantity of this Salt.

If the Salt separated in this Manner, is agitated with cold Rain-water, it will not be dissolved by it, but the *Alkali* that adheres to it, will be thoroughly washed away, so that by this Means it will become perfectly pure; and if then gently dried, it will be simple, and may be preserved so.

REMARKS.

1. Many skilful Chymists have formerly asserted, that true fixed *Alcaline Salts*, can scarcely be reduced to crystalline Glebes; and this is in a great Measure true. When the more modern Chymists, therefore, have produced the Salt thus separated from an *Alkali*, as an *Alcaline Salt* crystallized, they have not distinguished so accurately as they should have done; and in Fact when an *Alkali* is well freed from this Salt, it is not easy to reduce it into Crystals, though even that is possible.

THE NATURE and QUALITIES of this SALT.

This Salt never spontaneously liquefies in the Air. In cold Water it does not dissolve readily. But in a large Quantity of boiling Water it will at last be dissolved; but as soon as ever the

Water grows cold, it concretes again into Glebules. It is hard, and brittle, and may be reduced to a fine Kind of mealy Powder, which will remain dry, and will not in the least attract the Moisture of the Air. It has an exceeding bitter Taste, which continues long in the Mouth. In the Fire it crackles, and flies about with some Violence. It is neither Acid, nor *Alcaline*, neither is it like any other Salt that we are hitherto acquainted with, but a perfect new Kind of Salt. It seems, however, to approach nearest the Nature of that Salt which is thrown up in making of Glass; and, being collected at the Top, goes by the Name of the *Gall of Glass*. It is possible that the Fire, whilst it produces the *Alkali* from Vegetables, generates this Salt at the same Time; and that the Fire, when it combines the *Alkali*, with the Calx of Flints, for the Production of Glass, separates again this Salt, and casts it on the Surface of the Metal. It is very probable, that this may be the Case. And hence we may in some Measure understand why no such Salts can be procured from the *Alcaline Salt* of Tartar; for Tartar is generated in exceeding fine Particles from a subtile fermented Liquor.

3. A fixed *Alcaline Salt*, when it is perfectly freed from this brittle, bitter Salt, differs intirely from the same when united with it. Whenever, therefore, any Experiment is to be made with a pure *Alcaline Salt*, Care must be taken always first to separate this from it; otherwise it often impairs, or interferes, with the true *Alcaline* Virtue of Salt. Boerhaave's Chymistry.

SOME OBSERVATIONS ON FIXED *ALCALINE SALTS*.

1. Fixed vegetable Salts are procured only by Fire, from Vegetables that are naturally fitted for their Production. Some Plants, when they are burnt, scarcely yield any of this Salt: And even those that are naturally disposed to do it, if they are exposed for a considerable Time to the Air, and undergo alternately repeated Vicissitudes of Moistness, and Dryness, lose at last all that Matter, which, by burning, would have produced an *Alcaline Salt*, and therefore, if they are then burnt, they yield none at all: For the Air perpetually changing, with respect to Moisture and Heat, acts upon Vegetables, and deprives them of that Matter which they otherwise yield by Decoction and Infusion, and disperses it in the Atmosphere, and by this teaches us, that the Part, which the Fire fixes into an *Alcaline Salt*, was spontaneously volatile in its own Nature.

2. Again, fixed, *alkaline*, vegetable Salts, are generated only by Fire, whilst it actually consumes Plants that are disposed for this Operation: For in the Matter which Vegetables yield by Infusion, and Decoction, and native vegetable Salts, no such Thing appears: But they are only generated by a burning Fire. And here also it is observable, that according to the different Degrees of Fire, and Duration of its Action, the Salt is rendered proportionably more or less strong, fixed, and *Alcaline*. It must, however, be confessed, that in Mustard-Seed, there naturally exists somewhat *alkaline*, as appears by its Effervescence with Acids; but this is volatile, and disappears when the Mustard-Seed comes to be burnt.

3. A fixed *Alcaline Salt*, therefore, is not a native, vegetable Salt, that is, a Salt generated by the specific Nature of a Vegetable, from the common nutritious Juices it receives from the Earth, and which of consequence will always remain in it, so long as it is left to itself, and suffers no Violence sufficient to alter its natural Disposition. But this is destroyed by the Fire, and is converted into something of a quite different Nature. The larger Garden-forrel abounds with a native, acid Salt; and yet, if this is burnt in an open Fire, it yields a fixed *Alcaline Salt*, though before it evidently contained an Acid. This *Alkali*, therefore, is not native to Plants, but is changed by the Fire, from one that was not an *Alkali*, to an *Alkali*.

4. From what has been said, the Nature of an *alkalescent* Vegetable may be understood: For by this Name are meant, first, such as abound with an acrid, and almost *Alcaline* Juice, affording a volatile, odorous Exhalation, for which Garlic, Onions, and others of the like Kind, are remarkable. Secondly, those that, by their acrimonious Stimulus, increase the Velocity of our Humours, as they circulate through the Vessels, and by this Means cause our native Salts to verge towards an *Alcaline* Putrefaction. Hence the most acrid Aromatics, though not in themselves really *Alcaline*, dispose, however, our native Salts to an *Alcalescence*. And, thirdly, those which by Fire yield a large Quantity of a fixed, *Alcaline Salt*.

5. Betwixt a native, vegetable Salt, therefore, and the most acrid, *alkaline*, fixed Salt, there are a great many Degrees of fixed Salts, all which differ in their physical Actions, and consequently in their Natures, these ought then to be carefully distinguished from each other. An Example will make the Meaning of this more obvious. Take the best Rhenish Tartar: This is the native Salt of the Wine, perfectly acid, and in some Measure sharp, and hence of infinite Use in *alkalescent*, bilious, putrid Distempers; if this is distilled in a glass Retort, with a gentle Fire, it yields a small Quantity of an aqueous, acidish, light Liquor, which allays Thirst. When this is drawn off, the Substance that remains in the Retort begins to be *alkaline*, and will make a Man hot and thirsty. Uge the Remainder with

with a Fire somewhat stronger, there will then arise a fragrant, penetrating, bitter, heating Oil, of a golden Colour. This being separated, the remaining Mass will appear black, will be more *Alcaline*, will heat the Body more, create a greater Thirst, and, being boiled with Spirit of Wine, will yield a noble, aperient, detergent, diuretic, anti-hydropsical Medicine. If the Fire is farther increased, a thicker, tenacious, foetid, bitter Oil comes over, and at the Bottom of the Retort, there will be left a very black Coal, which will be much more *Alcaline* than the former. If this is then taken out of the Retort, put into a Crucible, and exposed to an intense naked Fire, a fixed *Alcaline Salt* will at last be produced, which, according to the Strength and Duration of the applied Heat, will be continually changed in all its Properties, becoming constantly more and more acrid, as the Action of the Fire upon it is more intense, and longer continued. In this Case we see a native, acid Salt, rendered at last extremely *Alcaline*, by the Action of Fire only.

6. Three Causes are observed to impart these Differences to *Alcaline Salts*. First, the Proportion of combustible Oil that adheres to the saline Matter; for the greater this is, the less acrid will the *Alkali* be; and if the Quantity of this Oil is less, the Salt will be more acrid. Secondly, the artificial Combination of this Oil with the *Alkali* makes a Difference; for if the Plant is ustulated with such a slow suffocated Fire, as is used in the Preparation of Tachenius's Salt, it will yield a greater Quantity of Salt, but less acrid, and *alcaline*; but if it is burnt hastily in a strong, open Fire, it will produce less Salt, but of a more acrimonious Nature. Thirdly, the proper Action of the Fire itself, seems to add something igneous to the *Alcaline Salt*, whether this arises from the Fixation and Accretion of the very Substance of the Fire to the Salt, or only from a Power which it is endowed with of altering the Salt in this Manner. This is beyond Dispute, that the longer Lime is burnt, and the intenser the Fire is that is made use of in the Operation, the more Heat, or the more true Fire it will excite in cold Water. And fixed *Alcaline Salts* also, will generate more Heat in cold Water, as they have been exposed to a creature Torture of Fire during their Preparation. To these Causes, perhaps, a fourth may properly be added, and that is, the original seminal Property of Plants, which is not easily destroyed. One Plant shall yield a great deal of fixed Salt; another, none at all; not that this last naturally contained less Salt than the former, but because it was of such a Nature, that it would not suffer the Matter which constitutes the *Alkali* to be fixed, by the Salt, or the Oil, or Earth, or all together.

7. From what has been said above, we arrive at the Knowledge of the Origin of *Alcaline Salts* in Animals, so far as they regard the Matter of their Food, Drink, and the Air they respire. For Animals that live solely upon pure Water, and Vegetables, take into their Bodies the very Matter, from which *Alcaline Salts* are generated. No-body could naturally suspect, that such an insipid Body, as soft, moist Grass, should, by being burnt, yield an acrid, igneous *Alcaline Salt*. Or who can possibly discover any Thing of this Kind in Ale or Wine? and yet Experience proves that an *Alkali* may be produced from all these. But the Action of the Animal Body brings this latent Matter to Light, and manifests it. A Child that is fed with nothing but sweet, mild, fresh Milk, which does not discover the least Degree of Saltiness, makes constantly a salt, acrid Water, not by actually generating any Salt, but by setting that at Liberty, which before lay concealed. The Urine also of a Bullock, which lives on Vegetables only, is found to be exceeding salt, for the very same Reason. But in Animal Bodies, this Salt is rendered volatile, because it is freed from its fixing Earth, by the Digestion it undergoes in the Stomach, which resembles a sudden Putrefaction. And Putrefaction is known to render the Salts of Plants volatile.

A compendious VIEW of the EFFECTS of fixed ALKALINE SALTS upon the BODY.

1. They soon destroy all the Acid in the Body; for there it meets with but a small Quantity, and that too, a mild, vegetable Acid, only residing in the Primæ Viæ, that is, in the Stomach and Intestines.

2. If they meet with an Acid there, they cause an Effervescence, generate Wind, and cause Eructations, stimulate by their Activity, and are converted together with the Acid into a neutral Salt, which then becomes harmless, penetrating, aperient, diaphoretic, diuretic, and antiseptic, and productive of new Effects by Virtue of their Neutralization, which are sometimes attributed improperly to the *Alcaline Salts*, because subsequent to their Exhibition.

3. By Means of this Effervescence they stimulate the Nerves, move the Spirits, and incline both to Motions, different from what they had before. Hence, they often cure the Spasms of hypochondriacal Men, and hysterical Women, and the Distempers depending on them; an Instance of which we see in the celebrated Anti-emetic of Riverius, consisting of an *Alcaline*

Salt mixed with Juice of Lemons, which, if drank in the Act of Effervescence, cures the Cholera Morbus, and stops obstinate Vomitings, which resist all other Methods.

4. They attenuate and resolve whatever is coagulated by an Acid; and hence, when Milk is curdled in the Stomach, they have very good Effects, if prudently administered. They are also capable of resolving other tenacious Concretions.

5. They attenuate glutinous, oily, and fat Concretions, and render them more easily miscible with Water, and hence become Detergents. Fullers, Laundresses, and Dyers, are sensible of this Property in a Lye of these Salts, and therefore they use them to remove viscid, greasy Concretions from Cloths. If moderately used, therefore, they free the chylo-poietic Organs from all glutinous Impurities.

6. They resolve Coagulations of the Bile, Lymph, Blood, and Serum, when admitted into the internal Parts of the Body, and there agitated by the vital Powers.

7. By their acrid Stimulus, they put in Motion Bodies that were before unactive, and hence they provoke Urine, Sweat, and Perspiration, and for this Reason are numbered amongst Diuretics, Diaphoretics, and Sudorifics: The Intestines also they stimulate to a Discharge of their Contents.

8. In Diseases, therefore, attended with unactive, mucous Viscidities; where an Acidity prevails in the Stomach and Intestines from acedent Aliment; where there is a Load of acedent austere Crudities, manifest by the Coagulations it produces; where a watery Serum, or fat, tenacious Concretions abound, or where Distempers have been generated by these Causes, as the Dropsy, Jaundice, Leucophlegmatia, Gout, Rheumatism, and Scurvy: In these Cases, this Salt is of great Use, if prudently given, that is, well diluted, in small Doses, and those administered at a proper Time, and properly repeated. That Species of Gout which is caused by an abundant Acid, scarcely admits of a more successful Method of Cure, than that which may be performed by a continued Use of these Salts, taken in small Doses. But it does not follow from their Effects in this Case, that they are to be extolled as universal Remedies for the Gout; for they will do a great deal of Prejudice to gouty Patients, whose Bile is exalted into an acrid *Alcalescence*, and whose Humours tend spontaneously to an *Alcaline* Putrefaction.

9. These Salts also are of considerable Use to the Surgeons; for as Caustics they are employed to raise Escars, in order to make Issues; by a temperate Lixivium of these, sordid, putrid Ulcers are successfully mundified; Parts that are corrupted by a Gangrene, if scarified almost to the Quick, and then fomented with a Lixivium of these Salts, contract into a Crust, and then admit of a Separation from the living Part, and by these Means the Mortification is prevented from spreading farther, and a Cure is happily effected; they extirpate Warts also, and eat away small Cancers with Safety; and if sufficiently diluted, they will effectually take away Discolorations or Spots of the Skin.

10. It is however necessary to remark, that the Use of these Salts is highly pernicious in every Disease, where the native animal Salts begin to degenerate into an acrid, alcalescent, putrid, volatile Nature; or where the natural Oils of our Bodies are disposed to turn acrid, foetid, putrid, rancid, and volatile, which is manifested by a disagreeable Smell, peculiar to this Kind of Putrefaction, and a Redness of the Urine. But these Salts are particularly destructive, when the Bile is thus degenerated into an acrid *alcaline* Nature, and when the Humours of the Patient are too much dissolved, fluid, and putrid; hence in the Plague they are almost an immediate Poison, and this pernicious Quality is even communicated to the Soap, in which they are an Ingredient. Hence, therefore, in Inflammations, Suppurations, Gangrenes, a Sphacelus, continued putrid Fevers, and Diseases arising from too great a Velocity of the Blood, the internal Use of these Salts must be absolutely forbid.

11. And, indeed, in all Cases they should be used with Caution. Let a Dram of them be dissolved in twenty Times its Weight of Water, and this is the largest Dose that ought ever to be given. Let them be repeated with Circumspection, and let it be carefully observed when the Necessity for their Exhibition ceases. And with these Cautions they may be used successfully, and without Danger. Lastly, let the Effects be determined to particular Parts of the Body, in the Manner specified in the Remarks upon Tachenius's Salt.

Besides the *Alcaline Salts* already taken Notice of, there are others which are volatile, that is, which are capable of being forced by a considerable Heat from the Body which contains them, and which afterwards rise with a very small Degree of Heat. The most remarkable amongst these are animal Salts, which may be procured by Distillation from every animal Substance we are acquainted with. Thus Hartshorn, Bones, Blood, Silk, and Cobwebs yield it in great Plenty. The Analysis of Blood given below under the present Article, may serve for an Example of the Method by which they are separated from the respective Bodies wherein they reside; and the Process with the whole Apparatus is specified under the Article CORNŒ

CERV, together with their medicinal Virtues, with Respect to which, let it suffice to say in this Place, that they agree pretty much with fixed *Alcaline Salts*, with a Reserve to the Difference which depends on their Volatility.

But there are besides these two Substances which yield a volatile *Alcaline Salt*, very like those which are prepared from animal Bodies. These are almost all those warm pungent Plants, which, if bruised, send forth a Vapour so acrid, that it makes the Eyes water, and will cause Sneezing, if it gets into the Nose. Many of the bulbous Roots possess this Acrimony in a great Degree; as Onions, Garlick, Leeks, Squills, Hyacinths, and the Narcissus; and the Seeds of a great many of the *alcalescent* Plants, a Catalogue of which will be given in this Article, abound with it.

The other Body which yields a volatile *alcaline Salt*, is almost any soft, juicy, vegetable Substance, which has undergone Putrefaction.

The following Process may serve for an Example of the Method by which volatile *Alcaline Salts* are procured from acrid Vegetables:

Fill a glass Retort almost to the Neck with ripe Mustard-seed, lute on a large clean glass Receiver, and distil gradually with a Sand-heat. The first Fluid that comes over, is oily, and yellowish, and, when collected by itself, is limpid and acrid. Increase the Fire, and there arises another Spirit like the former, but more yellow, and with a light and a very pinguious Oil. These also, if saved by themselves, are very acrid. Lute on the Receiver again, after it has been cleared of the last-mentioned Liquor, increase the Fire underneath, and at the same Time lay live Coals upon the Sand above, and by this Degree of Heat there will ascend from the remaining Mass a light black Oil in a large Quantity, and, at the same Time, an oily, *alcaline*, volatile Salt will stick upon the Sides of the Receiver, collected into little Spots, as it happens in the Distillation of Hartshorn. If this Degree of Heat is sustained for a considerable Time, white Fumes will continue to come over perpetually. A very black Mass will remain at the Bottom of the Retort, which is light and bitter, but not in the least salt.

Distil again in a clean Vessel, by a gentle Heat, the first and second Spirit which came over, and you will have in the Receiver a limpid acrid Liquor, not unlike Spirit of Hartshorn, and of much the same Virtues. A foetid oily Water will remain in the Retort.

Separate the Oil from the Liquor which ascended last, and from the Salt, and wash off the Salt which adhered to the Sides of the Glass with the last-mentioned rectified Spirit, and a Liquor will be obtained abounding with a volatile *Alcaline Salt*, which makes a considerable Effervescence with *Acids*, and which by Distillation with a gentle Heat, out of a tall Vessel, yields a pure volatile Salt, little different from Salt of Hartshorn, after Rectification.

Dr. Daniel Cox gives the following Account of the volatile *Alcaline Salt*, procured from putrefied Vegetables:

Take in warm Weather a considerable Quantity of the Leaves of any Vegetable, stripped or pulled from the greater Stalks, lay it on a Heap pressing it pretty close together; they will soon become very hot, especially in the Middle, and in a few Days resolve into a pappy Substance (excepting the outward Leaves) which being made into Pellets, and put into a glass Retort, and distilled, will yield, besides a great Quantity of Liquor, much thick black Oil, of a balsamic Consistence. The Liquor being separated from the Oil, and distilled in a tall glass Body, a volatile Spirit sublimes, which, after one, two, or three Rectifications, becomes perfectly urinous, not to be distinguished by Smell, or Taste, from well-rectified Spirit of Hartshorn, Blood, Urine, or Sal Ammoniac.

I never made Trial of any Herb, which, thus ordered, did not yield the mentioned Substances; although I have examined many, by this Method of Procedure, which seemed very different from each other, as well in sensible Qualities, as those vulgarly called *Occult*; such as Rue, Sage, both Celandines, Cardus Benedictus, Tobacco, stinking Orach, Garden Scurvy-grass, the lesser Spurge, Baum, Mint, Tansy, Camomil, Monk's Rhubarb, several Docks and even common Grass, with many others, which it were altogether unnecessary to enumerate; besides Flowers of Elder, Priony, Cowslips, Clove Gillyflowers, &c. with several Sorts of Mosses, and Rudiments of Vegetation; which last is a green Substance on the Surface of the Earth, in Rivers, Cisterns where Rain often falls, and on Ships between Wind and Water, very apt to run into Moss and Fibres.

1. The Vessels wherein these Distillations were performed, though exceedingly well washed with Water, scoured with common Salt, Sand, Ashes, Soap, fixed Salt, &c. and afterwards exposed many Years to the Air, Wind, Rain, Dews, and Frosts, yet nevertheless retained a very strong Smell, not much unlike that of Musk.

2. The Water left at the Bottom of the Glass, after the first

Rectification, was somewhat acetous; especially when the Herbs were not sufficiently putrefied.

3. If the Herbs are duly putrefied, they leave little Caput Mortuum, sometimes not a twentieth, and never, by my Trials, above a tenth Part; whereas distilled before Putrefaction, they leave much more; and this remaining Coal, burnt to Ashes, yields scarce any *Alkali* or fixed Salt.

4. The volatile Salt is much more than the fixed Salt would have been, afforded by the Herb incinerated the ordinary Way.

5. All those Herbs which yield Store of fixed Salt, such as Wormwood, Carduus, Mugwort, Sage, &c. do likewise, being thus managed, afford plentifully a volatile Salt.

6. These volatile Salts being highly rectified, did not, that I could perceive, differ from each other; as neither do vinous Spirits of putrefied Vegetables, or their fixed Salts highly purified and rectified.

7. During the Putrefaction, the Room would be strongly perfumed, at the Beginning, with the natural Scent of the Herb, if it had any eminently peculiar Smell, in the Middle of the Putrefaction with the Scent of a Mixt between that and the urinous; but, being well putrefied, became sensibly urinous.

8. The distilled Liquor of some Herbs, at the first Rectification, yieldeth a Spirit very hot; but the last inclined rather to that of pungent vinous Spirit of Scurvy-grass, Horse-radish, &c. being, if I may so speak, Piperaceous, and biting, rather than like volatile Salts; but, after repeated Rectifications, one, two, or more, according to the Nature of the Plant, or Time it had putrefied, became perfectly urinous. This was usually when the Herbs had not duly putrefied, which proceeded, in my Apprehension, from some Commixture of essential Oil, which, by reiterated Rectifications, is either separated or transmuted. The same happens in the vinous Spirits of putrefied Vegetables, and in their fixed Salts.

9. In the Distillation of the putrefied Herbs, the urinous Spirits and Salts came chiefly at the latter End with the Oil, in the Form of a thick white Cloud, or Fumes, and, condensing in the Recipient, formed an innumerable Company of very irregular crooked Rivulets, exactly after the Manner of Hartshorn, Blood, &c. and at the Beginning came the Phlegm, with most of the Acetum, in great Drops with little Fume, and the Rivulets strait, and without Striae and Wanderings.

10. Some Herbs, as Winter-savory, Sage, &c. in the first Distillation, yielded copiously a volatile Salt in a dry Form, which coated the Receiver, and sublimed into the Neck of the Retort; so doth Tobacco, and once Saffron did so, in Digestion with Spirit of Wine.

11. All Plants, thus putrefied, yielded plentifully (especially towards the latter End of the Distillation) a foetid gross Oil, which, if the Herb was well putrefied, did not in the least resemble the Plant which produced it. I could hardly perceive that they differed from each other in either Taste or Smell, only, if the Plant was not thoroughly putrefied, an Oil would come over at the Beginning of the Distillation, which, as also the Water, would retain exactly the Taste and Smell of the Vegetable which afforded it, and it would be fluid and transparent like other essential Oils. The Oil of Herbs very well putrefied came over chiefly at last, and did require a very strong Fire to extricate it out of the Herb; was mostly (especially that which comes last of all) of the Colour and Consistence of Tar, very tenacious, and did far and wide emit a very odd, faint, foetid, offensive Odour. If any Thing became infected by this Oil, it was not to be freed from it in a long Time.

12. Herbs, which are distilled in an Alembic with Water, yield little essential Oil, as Baum, Mint, Camomil, &c. afford much of it thus putrefied; and those that give much essential Oil, as Wormwood, with many others, being putrefied, yield abundantly more.

13. During Putrefaction, the Herbs became exceedingly hot, especially those that were closely compressed, and had Store of Moisture in them; so that I could as well detain my Hand in the Flame of an ordinary Fire, as in the Midst of them.

14. Fatty, moist, and insipid Herbs putrefy much sooner, and with greater Heat, as Grass, Docks, Garden Scurvy-grass, Celandine, &c. Drier, and much more sapid Plants, more leisurely, and with less Heat, as Winter-savory, Rosemary, Sage, Rue, Mint. The Stalks of no Herb putrefy so soon as the Leaves freed from them. This is most evident in Docks, whose tender Parts are pappy and mucilaginous, when the Stalks are intire.

15. Herbs seem by this Putrefaction to be deprived of all their specifical or peculiar Properties. Celandine loses its tingeing Quality; Spurge, its Milk, vesicating and poisonous Nature, &c.

16. Herbs, which before Putrefaction were extremely foetid, as Atriplex Olida, &c. become afterwards either inodorous, or not ill-scented. And, on the Contrary, Monk's Rhubarb, Garden Scurvy-grass, with many other inodorous Vegetables, during

ing Putrefaction, become abominably, and almost insupportably foetid, like the worst of Excrements, all which yet they lost immediately upon Distillation.

17. None of those Flowers, I have hitherto used, do stink in Putrefaction.

18. Many of the Herbs, thus putrefied, swarm with Maggots (an Argument of the close and steadfast Contexture of the seminal Principles in Insects) especially at the Bottom, and in the Middle, whither Flies and other Insects can have no Access, to deposite their Eggs, and where the Heat is so violent, that they could not possibly subsist.

19. Yet the volatile Spirit and Salt is not afforded by these Insects; for, having distilled separately a great Quantity of them, they yielded no volatile Salt or Spirit, but a Liquor of a very different Nature.

20. Herbs, putrefied in a great Glass with a narrow Neck, the Mouth left open, in a few Weeks became, for the greater Part, a Mucilage; and, distilled a Year after they had stood so open, yielded a little urinous Spirit, but not a Drop of Oil.

21. Vegetables, if the external Air be excluded from them, will not putrefy or ferment.

22. Some Herbs, Mosses, and Rudiments of Vegetation, yield a volatile Salt, distilled without previous Putrefaction; as do also many Seeds, and several of them sufficiently insipid.

23. These volatile Spirits and Salts have not only the same sensible Properties, but also agree in all known Effects, and Operations, with common urinous Spirits, and Salts; as, in the changing Syrup of Violets, and many other vegetable Tinctures, green, in being diaphoretic, diuretic, and deobstruent, contrary to Acids, which they do mortify, precipitate all Metals and Minerals dissolved in acid Menstruums; being highly rectified, and mixed with perfectly dephlegmated Spirit of Wine, strike the Offa alba, as Chymists speak. They unite with Acids, and thereby become Ammoniac or neutral Salts; and, indeed, perform whatsoever can be expected, or desired, from the common urinous Spirits of Salts. *Phil. Trans. Abr. Vol. 3.*

DISEASES generated by an ALCALI abounding in the HUMOURS.

What has been specified above with Respect to *Alcalies*, will lead us to a Knowledge of the Nature of *alkalescent* Aliments, and their Effects upon the Body in altering the Juices so as to be productive of Distempers. A Knowledge of infinite Importance to every Body concerned in the Practice of any Branch of Physic, because every Fever, or febrile Disease, is either caused by, or accompanied with a Tendency to an *alkaline* Putrefaction. And many chronical Disorders, which depend upon the Vitiating of particular Parts, owe many of their Symptoms to this *Alcalescence*.

Aliments are taken either from the animal or vegetable Kingdom. Of vegetable Aliments, the Juices of some, if exposed for a Time to a Heat sufficient, will turn sour, and these have been called *acescent Vegetables*.

But there is a considerable Class of Plants, which do not become acid by Putrefaction, but are resolved into a foetid oily *Alkali*. And from these, it is remarkable, that no vinous Spirit can be produced by Fermentation; for Fermentation is only an Effort to render vegetable Juices acid, or rather to disentangle the latent Acid, and separate it from the Oil and Earth, that confine and disguise it.

To this Class belong almost all the very acrid Aromatics, which by the Pungency of their Taste betray their Family. These are seldom taken in Quantities sufficient to produce a Disease by their own Power, but are however capable of promoting any preceding Tendency in the Juices to an *Alcalescence*, and heightening it into a Distemper. Physicians should therefore be careful how they prescribe the warm Antiscorbutics, because when any Degree of the above-mentioned *Alcalescence* prevails in the Juices, these will not fail to increase it by their Use, and if long continued, the Patient will run a great Hazard of incurring a Putrefaction of the Lungs, Liver, or some of the principal Viscera, which according to the Part thus affected will be attended with a foetid Breath, Spitting of Blood, a putrid Diarrhoea, Dropsy, or hepatic Flux.

Amongst *alkalescent* Vegetables, Boerhaave enumerates the following:

<i>Abfynthium</i>	Wormwood
<i>Alliaria</i>	Sawce all alone, or Jack by the Hedge.
<i>Allium</i>	Garlick.
<i>Alyffon</i>	Mad-Wort.
<i>Armoracia</i>	Wild Radish.
<i>Arum</i>	Cuckow-Pint.
<i>Atriplex Olida</i>	Stinking Orache.
<i>Asparagus</i>	Sparrow Grass.

Barbarea
Brassica
Bryonia Alba
Nigra

Bumium
Camelina
Capsicum
Cardiaca
Cardamine
Cataputia
Centaureum minus
Chamaedrus
Chelidonium majus
minus

Cochlearia
Cepæ
Dentillaria
Digitalis
Eruca
Erysimum
Esula
Eupatorium Canabinum
Gratiola
Iberis
Laureola
Lepidium
Napus
Nasturtium Aquaticum
Hortense

Nerion
Perficaria acris
Porrum
Raphanus
Ruta
Sabina
Saturcia
Sedum minus acre
Sinapi
Squilla
Tblaspi
Victorialis

Winter Cresses.
Cabbage.
White Bryony.
Black Bryony.
Wild Parsley.
Treacle Wormseed.
Guinea Pepper.
Motherwort.
Meadow Cresses.
Garden Spurge.
Lesser Centaury.
Germander.
Greater Celandine.
Lesser Celandine.
Scurvy-Grass.
Onions.
Lead Wort.
Foxglove.
Rocket.
Hedge-Mustard.
Spurge.
Hemp Agrimony.
Hedge-Hyssop.
Sciatica-Cresses.
Spurge Laurel.
Dittander.
Navew Gentle.
Water Cresses.
Garden Cresses.
Oleander, or Rose Bay.
Water Pepper, or Arsmart.
Leek.
Radish.
Rue.
Savin.
Savory.
Wall Pepper, or Stonecrop.
Mustard.
Squill.
Treacle Mustard.
Spotted Rampions.

Many of these are not proper for Aliment, as abounding so much with an *alkalescent* Acrimony, that it renders them poisonous. Besides the Vegetables above-mentioned, there are many others which properly belong to this Class.

All animal Foods have a spontaneous Tendency to an *alkaline* Putrefaction, the Milk of some Animals only excepted. This is obvious to every one who has observed Flesh, when exposed to a certain Degree of Heat, to putrefy and become foetid. But animal Foods differ very much:

First, With Respect to the Parts of the same Animal.

Secondly, With Respect to the Food of the Animal.

Thirdly, With Respect to the habitual Exercise of the Animal.

Fourthly, With Respect to the Manner of its being killed.

Fifthly, With Respect to the Season of the Year, or Climate in which it is eaten.

I. With Respect to the different Parts of the same Animal; Milk differs very much from all the other Parts, especially that of such Animals as live on Vegetables only, and Water; thus the Milk of the Ass, Goat, Cow, Mare, and Sheep, are *acescent*, that is, turn sour upon Putrefaction, like *acescent* vegetable Juices, from whence it is prepared, and not yet perfectly converted into an animal Substance, by the Powers of Digestion. And this Milk will acquire a Difference from the Sort of Vegetable, which the Animal that affords it principally feeds on.

The Entrails of Animals also differ from the muscular Parts; and have a greater Tendency to Putrefaction, as being more full of Juices, and of these Juices some incline more to Putrefaction than others. Thus we find, when an Animal dies, the Abdomen and its Contents putrefy first.

The Blood also is more subject to Putrefaction than the solid Parts, and promotes Putrefaction in the Solids where it abounds. Hence, the more animal Aliment is cleared of Blood, the lesser subject will it be to produce an *Alkaline Acrimony* in the Stomach and Intestines, and an *Alcalescence* in the Juices of another Animal that eats it.

II. With Respect to the Food of Animals, those which live on Grass, or other *acescent* Vegetables, on ripe Fruits, or Corn, are furnished with Juices less inclinable to Putrefaction than other Animals, abound less with volatile *Alkaline Salts*, and these Salts are less volatilised, and exalted. Hence upon Putrefaction they are less foetid, and offensive. Of this Sort are the following Animals:

The Lamb, and Sheep.
The Calf, Cow, and Ox.

The

The Kid, and Goat, especially when young.

The Rabbit.

Swine, provided they are fed with Vegetables only. See the Article *Porcus*.

The tame Duck, if fed with Corn only.

The tame Goose, if fed with the same.

Hens of all Sorts.

Turkeys.

Tame Partridges.

Tame Pheasants.

The Quail.

But all Animals which feed principally on other Animals, or Insects, have Juices which abound with a highly exalted volatile *Alkali*, having undergone a Sort of double, and sometimes triple Sublimation, or Rectification, first in the Organs of the Animal which serves for Food, and secondly in those of the Animal which feeds on it.

III. Animal Foods differ with Respect to their habitual Exercise, for strong Exercise, long continued, exalts the volatile Salts of Animals, and makes them approach to a State of Putrefaction.

The following Animals, used commonly for Food, abound with a volatile Salt, exalted either by their Food, Exercise, or both.

Deer, both red and fallow, by Reason of their habitual Exercise, though they feed on Vegetables.

The Hare, for the same Reason.

The wild Boar, for the same Reason.

Pigeons in some Degree, because of their habitual Exercise.

The Lark, both because of its Exercise, and Food, which is principally of Insects.

The wild Duck, both because of its Exercise, and Food, which consists much of small Fish, Frogs, and aquatic Insects.

This is also true of all the Duck Species.

The wild Goose, Solan Goose, and all of the Goose Species, for the same Reason.

The wild Swan, or Elk, for the same Reason.

The Bittern, because of its Food, consisting principally of Fish, and Frogs.

The Woodcock, because of the great Exercise it is used to.

The Snipe, for the same Reason; and in general all Birds of Passage, very few excepted.

The Plover, and Lapwings, both because of their Food, which is principally of Insects, and their Exercise.

The wild Pheasant, because of its Food, which consists principally of Ants.

The Sparrow, and all small Birds which feed partly on Insects, partly on Vegetables, and use much Exercise, have Juices proportionably *alkalescent*.

IV. Animal Food is more or less *alkalescent*, with Respect to the Manner in which it is killed. Thus if an Animal is killed whilst very hot with strong Exercise, or soon after, the Tendency to Putrefaction in the Juices will be very much increased; inasmuch that an Ox, or Sheep, killed in such a Manner, will be as subject to Putrefaction as an Animal whose Juices are naturally more *alkalescent*, but killed whilst perfectly cool. Hence Deer, and Hares that are hunted, and Birds killed by hawking after a long Flight, contract an immediate Tenderness, which is the first Stage of Putrefaction.

Animals also which are shot, strangled, or killed in any Manner which prevents their Bleeding, are more subject to an *alkaline* Putrefaction, than those which are suffered to bleed freely. Of this the nice Judges of culinary Arts are so sensible, that they frequently kill Fowl by strangling them, in order to exalt their Taste, or, which is the same Thing, increase their Tendency to Putrefaction.

V. The Climate, or Season, makes a Difference in animal Food, because Putrefaction is always in Proportion to Heat, and consequently the Juices of the same Animal will be more disposed to an *alkaline* Putrefaction in warm Climates and Seasons, than in those which are cold.

Hence the Inhabitants of very hot Climates are obliged to use animal Food sparingly; and through a Neglect of this Consideration it is, perhaps, that many of the Northern Europeans, who travel far to the South, contract Calentures, and putrid Fevers. I am also persuaded, that the indiscriminate Use of animal Food in the hottest Summers, and coldest Winters, is productive of many acute Distempers and Deaths in England.

Most Sorts of Insects are highly *alkalescent*.

Fish of all Kinds are *alkalescent*, and that in a very high Degree. Those of fresh Lakes and Rivers, however, are less so, than Sea Fish; and again, the softer Sort of Fish without Scales are observed to incline sooner, and more, than those furnished with Scales, to an *alkaline* Putrefaction; and Shell-Fish most of all.

And it may be laid down as a certain Rule, that of all Sorts of Animals, whether terrestrial, or aquatic, those which putrefy soonest, and become most offensive when putrid, incline

the Juices of our Bodies most to an *alkaline* Putrefaction, when used as Food. And indeed some of them are not to be eaten safely for this Reason, without Vinegar, Salt, or *acescent* vegetable Liquors.

From what has been said under the preceding Articles in Relation to the *Alcalescence* of animal Aliments, and what is specified under the Article *Porcus*, one Reason at least will appear, why it pleased the Supreme Being to forbid the Jews, a People that inhabited a very warm Climate, the Use of many Sorts of Animals as Food; and why they were enjoined to take away a great deal of Blood from those they were allowed to eat.

It would be prudent if we, though Inhabitants of a colder Climate, would however believe, that he who cannot err has consulted our temporal Welfare in every positive Injunction he has laid upon us, though the Reasons for it may not always be very obvious; for this would surely incline us by Acts of implicit Obedience to secure to ourselves Happiness and Health.

But that I may set the Advantages, accruing to the Children of Israel from these Prohibitions, in a stronger Light, I shall make the following Observations on the Foods they were forbid to use, with this further Remark, that if we, even in our cold Climate, would conform to the Rules laid down by the wise Legislator of the Jews, Longevity would be more frequent amongst us, as we should be much less subject to be affected by epidemical Distempers, and acute Diseases of all Sorts, which carry off at least two Thirds of Mankind. Nor would chronical Affections perhaps be so terrible, and difficult to conquer, as they are found to be at present.

It must be remembered, that the Climate, in which the Children of Israel lived, was very hot; and that therefore every Species of Aliment which is improper to be eaten in our Climate, on Account of its Tendency to an *Alkaline* Putrefaction, was much more pernicious in the warm Country inhabited by the Jews.

The Aliments forbidden the Jews were:

Blood. This is extremely subject to an *alkaline* Putrefaction, and the Juices formed from it are highly *alkalescent*, and subject to putrefy. For the same Reason all Animals whatever killed, without being suffered to bleed sufficiently, are improper Food. It is well known to common Observers, that the more succulent, and juicy the Flesh of Animals is, the more subject it is to Putrefaction.

If an Animal has been heated by Hunting, there seems a farther Reason to let it bleed, in order to lessen the Tendency to Putrefaction it acquires by Exercise, and Heat. And thus we find it directed, *Leviticus, Chap. xvii. V. 13.*

And whatsoever Man there be of the Children of Israel, or of the Strangers that sojourn among you, which hunteth or catcheth any Beast, or Fowl which may be eaten; he shall even pour out the Blood thereof, and cover it with Dust.

Animals which die of themselves are unwholesome, both as they do not bleed, and as their Juices are generally in an actual State of Putrefaction, or near it, before they die. And we find the Flesh of such Animals forbid in the above quoted Chapter, Verse the 15th.

גמל Gamal. — The Camel. Though the Food of this Animal is only Vegetables, and Water, yet the Fibres are hardened, and rendered in a great Measure indigestible, and the Salts are highly exalted by its habitual Exercise.

שפן Shaphan. — The Cony, as we translate it, but Bochart in his *Hierozyicon* says, it is a large Species of Rat, and others call it a Mountain Rat. Thus, *Proverbs, C. xxx. V. 26.* *שפנים* are said to make their Houses in the Rocks.

As the general Food of all Creatures of the Rat Species is Animal, their Juices must be consequently much inclined to an *alkaline* Putrefaction, and therefore their Flesh must be unwholesome.

ארנבת Arnebeth — The Hare. The Animal we call thus is certainly meant in this Place; the Septuagint translates it by *λεπρος*, and with this the Syriac and Arabic Versions agree; and thus the Jews understood it, who abstained from eating it, as we learn from Plutarch, *Symposiac. 4. Quæst. 5.* and Clemens Alexandrinus, *Pædag. 2. 10.*

The Hare is remarkable for being extremely timorous, and this makes it use a great deal of Exercise by way of Precaution, when he goes to seek his Food, and at the Approach of any Danger, either real, or imaginary; this habitual Exercise probably contributes to the Exaltation of the Salts. We find in Effect that the Hare has a very high Taste, even in our cold Climate; and this high Taste universally is an Evidence, that the animal Flesh which gives it is strongly inclined to an *alkaline* Putrefaction. It is remarkable that the old Britons abstained religiously from eating Hare, as we learn from Cæsar, *de Bello Gallico, L. 5.*

חזיר Hbazir — The Swine. This Animal is remarkable for Filthiness, and feeding on all Manner of Ordure, even Carrion if it falls in his Way. It is the only Animal in the Brute-Creation

Creation subject to the Leprosy; and also something very like what we call the King's-Evil, called in Latin *Scrofula*, from *Scrofa*, a Sow; as this Disease is in Greek called *Χειρα*, from *Χοίρος*, a Swine. The Measles is another filthy and contagious Disease which this Brute is frequently infected with, inasmuch that it has passed into a Proverb, as we learn from Juvenal, who calls it *Porrigo*. In this Distemper, all the fleshy Parts are full of innumerable small, round, white, and hard Substances somewhat like Hail Stones.

Hence it must appear to every reasonable Observer, that the Flesh of this Beast, as an Aliment, must be highly improper for a People so subject to Leprosies, as the Jews appear to have been, and who were Inhabitants of a warm Climate, which renders every Thing more inclinable to Putrefaction.

All BEASTS which do not both divide the HOOF, and chew the CUD.

Under this Prohibition are included all Beasts of Prey, and those which eat Flesh, whose Juices are highly *alcalescent* for Reasons before given. All Animals of the Horse, and Ass Kind, are likewise here prohibited. And we find that the Flesh of all these is difficult to be digested, and assimilated by the vital Powers, and that the Juices are rank and *alcalescent*; perhaps because they are frequently heated by the habitual Exercise they are obliged to use for the Service of Man.

I cannot explain scientifically all the Effects which Chewing the Cud may have upon the Flesh and Juices of the Animal that does it. But it is worthy of Observation, that all Creatures which chew the Cud live on Vegetables and Water only, have a very slow Digestion, spend a great Part of their Time in getting their Food, and the rest either in chewing the Cud, or sleeping; so that it is accidental if they ever use Exercise sufficient to heat themselves, harden their Flesh, and exalt their Salts to any considerable Degree of *Alcalescence*. Of this the Cow, and Sheep are obvious Examples. Deer both chew the Cud, and divide the Hoof; and their Juices are notwithstanding somewhat *alcalescent*, as they are usually killed amongst us. The Flesh is however tender, and easy of Digestion; and if they are killed according to the Directions of the Levitical Law, that is, if they are suffered to bleed plentifully, this Tendency to an *alkaline* Putrefaction is in a great Measure removed.

All FISH which have not FINS and SCALES.

These are what medicinal Writers call *Pisces molles*. It has been observed above, that all Sorts of Fish are very subject to Putrefaction; but those without Scales more than others, and Shell-fish most of all.

נשר *Nesher* — The Eagle.

פרס *Peres* — The Osprey.

עזניה *Iznijah* — The Osprey, so called from עזייה with a נ *Epenthetic*. It is an Eagle, so called from his Strength, which we may imagine to be the little Black Eagle, which is therefore called *Valeria*. The Syriac renders it a Crow.

דאה *Daah* — The Kite, so called from his Flight, which is very strong, especially when he hangs in the Air, without moving his Wings.

איה *Aijah* — The Merlin, a Kind of small Hawk.

ערב *Orch* — The Raven, or perhaps the *Nycticorax*.

בת העונה *Bath Hajjaanah* — The common Owl.

תחום *Tahmas* — The Noctua, a Species of Owl.

שחם *Shabbaph* — The Cuckoo.

נץ *Natz* — A Hawk. It is explained a Bird with which other Birds are taken, and which Fowls carry on their Bills.

כוס *Cos* — The Goshawk. Some translate it an Owl; others *Onocrotatos*, a Bird which makes a Noise like an Ass.

שלך *Shalach* — The Cormorant.

ינשוף *Janshuph* — The great Owl.

The Juices of all these are highly *Alcalescent*, both as they are Birds of Prey, and as their habitual Exercise is great.

תנשמת *Tinshemeth* — The Swan, or Chough Dart. It is of no great Importance which is here meant, for the Juices of both are much *Alcalescent*, and their Flesh rank, and scarcely digestible.

קאה *Kaah* — The Bittern. This Fowl feeds on Fish; the Flesh is very rank, and subject to Putrefaction.

רחם *Rabbam* — The Gier Eagle. It feeds on Flesh.

חסידה *Hbasidah* — The Stork, so called from חסיד, because its Piety to its Parents is said to be remarkable. Hence Petronius calls it *Pietatis Cultrix*. The Stork feeds on Frogs, Serpents, and other Reptiles, which are in general extremely *Alcalescent*, and therefore it must afford Juices in a State very near to Putrefaction.

אנפח *Anaphah* — The Heron. It feeds on Fish, and uses a great deal of Exercise, and for both these Reasons has Juices highly *Alcalescent*.

דוכיפת *Duchiphath* — The Lapwing; a Bird almost perpetually on the Wing, and which feeds on Insects. The Flesh is of a very high Taste, and near to a State of Putrefaction.

עטלפ *Atallaph* — The Bat. It feeds on Insects.

חולד *Hholod* — The Weasel, a Beast of Prey.

עכבר *Achbar* — The Mouse. It feeds on Flesh.

צב *Tzab* — Properly the Toad from its Swelling, derived from עבה, *intumuit*.

אנקיה *Anakah* — This is sometimes translated the Ferret, and by some it is called a Species of Locust. But, as in the Prohibition it immediately follows after the Toad, and is derived from אנק, which signifies *clamavit*, there is great Reason to believe it should be understood the Frog, literally the Cryer; or, the Beast that cries, alluding to the Croaking of this Reptile.

כוח *Ciaab* — The Lizard.

לשאה *Letaah* — Bochart calls it the Salamander, a Sort of Lizard.

חומט *Hbomet* — The Snail.

תנשמת *Tinshemeth* — Bochart calls it here the Chamælion; in another Place quoted above, the same Word signifies a Swan, or Jack-Daw.

All these Reptiles are extremely subject to Putrefaction, as are Reptiles of almost every Kind; the Smell of these, when putrefied, is extremely offensive; and hence we must conclude their Salts to be highly exalted, and their Juices *Alcalescent* to a great Degree.

Before I proceed farther in the Account of an *Alcaline* Putrefaction in the Juices, and its Consequences, it is necessary, that I specify the Parts into which the Blood is separable by Chymical Analysis.

First then, if the Blood of a Person in Health, fresh taken away, is put into a Retort, with a Receiver accurately luted to it, and is then committed to a Heat much less than is sufficient to make Water boil, a Vapour comes over, which condenses into a Liquor very little, if at all, different from Water, and which does not appear to be either *alkaline* or acid; saline, pinguious, or in any Degree acrimonious. And if the Fire is increased to the Degree of boiling Water, the same Vapour still continues to come over, forming exactly the same Kind of Water, till the Blood put into the Retort loses much about seven Eighths of the original Weight.

If the remaining dry Mass is taken out of the Retort and examined, it affords no Signs of containing any Thing the least *alkaline*, acid, or acrid, but is utterly insipid, except that it tastes and smells of Burning, and that not much. This inclosed in a wooden Box, will keep for Ages without Putrefaction. But by a Sand-heat, gradually increased, it yields, first a fattish, oily, bitter Liquor, somewhat inclining to be *Alcaline*; then a white volatile Salt; and, as the Fire increases, a yellow Oil, and with it the same Kind of Salt. Take the Receiver away that contains what is come over, and lute on another; urge the Remainder with the most extreme Degree of Fire that the Glass will bear without melting, and white Fumes will arise without ceasing, if the Operation be continued ever so long, and with these a black, thick Oil.

The Mass remaining in the Retort is very black, and shining, brittle, extremely light and spongy, of a disagreeable Smell, empyreumatic, bitter, and scarcely at all salt; this, when urged with a Heat almost sufficient to melt the Retort, continues perpetually to emit Fumes, and preserves its black Colour so long as it remains in a closed Vessel; but when exposed to a naked Fire, it flames, and, losing this Blackness, becomes white, and is then found to be an insipid Earth, containing not the least Portion of an *Alcaline Salt*; but a small Quantity of an Acid may be got from it by an extreme Degree of Fire, which Boerhaave imagines to be the Offspring of the Sea-Salt which had been used in Food, and remains in the Blood unaltered; but in his Observations on this Process, he tells us, that he had observed the same Appearances in the Distillation of the Blood of many Brutes, and therefore this Acid cannot be owing to Sea-Salt, because no Animal, that I know of, eats Salt, except Man and Pigeons, unless domestic ones, as Dogs, and Cats, sometimes by Accident, not by Choice. I am sensible it may be answered, that there is Salt, more or less, in all Water that Animals drink; and I know a Salt may be procured from the Urine of Animals, much resembling Sea-Salt in the Figure of the Crystals, and some other Properties. But if the Source of this Salt was the Sea-Salt taken into the Stomach with the Aliment, human Urine would probably yield more of this Salt, than that of graminivorous Animals, because the Salt taken in the Water of these Animals, bears no Proportion to that which is eaten by a Man; however it appears, that the Urine of a Cow, or a Horse, yields a much larger Proportion of this Salt than that of a Man.

Here then we find in the Blood a Water, an Oil, a volatile *Alcaline Salt*, a fixed Earth, and a Portion of Acid. And now, if we consider attentively the Progress of animal Putrefaction, we shall find it has exactly the same Effects, as the Distillation described above, and that it only differs from it in taking up a somewhat longer Time. For first the watery Particles exhale; next the saline Part is attenuated, and disengaged from the Earth and Acid, and thus being rendered acrid, *alkaline*, and volatile, rises together with a Part of the Oil also attenuated, and separated from the Earth, and affects the Organs of Smell

with a Nidor, or Stink peculiar to animal Substances in a State of Putrefaction.

The rest of the oily Particles unite with the Earth thus deprived of the finer Part of the Oil, Water, and Salt, and both together form a black, tenacious, viscid Substance, which, however, at last is resolved, and leaves nothing behind but a pure virgin Earth, the Acid also exhaling. Thus the animal Juices, by Putrefaction, undergo a thorough Alteration, and Separation, after which it is impossible to unite the separated Particles again, so as to make an uniform homogeneous Fluid, like what it was before.

It is impossible this Putrefaction should prevail universally in the Juices whilst the Animal is alive, for Reasons which will be given hereafter; but particular Parts of the Body may putrefy, without causing immediate Death. *Alcalescent* Food also may putrefy in the Stomach and Intestines, and cause great Disorders in the animal OEconomy, when taken in Quantities disproportioned to the Powers of Digestion. And the Juices in general may have a strong Tendency to Putrefaction, and of this several Birds that feed on Carrion are sensible, much sooner than Mankind, for as soon as the volatile Salts, and rancid Oils, begin to exhale, the Organs of Smell, in these Birds, are sooner affected than ours, inasmuch that they are frequently allured from considerable Distances, to the Neighbourhood of Houses inhabited by People in Fevers.

The antecedent Causes therefore of an *Alcalescence* in the Body, and the Diseases depending thereon, may be reduced to the following:

1. *Alcalescent* Aliment, that is, Aliment of *alcalescent* Vegetables, or of Animals, the Milk of graminivorous Animals only excepted. And amongst these Fish, particularly their Livers, and Skins: Fowls that live on Fish; all Birds which prey on other Animals, or Insects, or which are used to a great deal of habitual Exercise; also Animals killed whilst heated with strong Exercise, incline more to an *Alcaline* Putrefaction than others.

2. A Weakness of the Organs of Digestion.

When this is the Case, the Aliment, following its natural Tendency, putrefies in the Stomach, and causes what is usually called a Surfeit. And the Chyle enters into the Blood in a State near to Putrefaction, or in Part putrefied.

3. A great Strength of the digestive and assimilating Organs, for this produces

4. A great Quantity of Blood highly exalted, and in a State very near to Putrefaction, and a Bile in a State near to Putrefaction.

It must be remembered, that Acescent Aliments are by the Actions of the above-mentioned Organs converted into *Alcalescent* Juices. When therefore these Organs act strongly on Food already *alcalescent*, it must be rendered more so, and brought nearer to a State of Putrefaction.

It is upon this Account that Plethoric People are more subject to epidemical Disorders than others; that People in a full State of Health, are more in danger of falling into Fevers, and those of a bad Kind, than others whose general State of Health is not so good; and that such who have very strong Constitutions, are more liable to pestilential Disorders, and putrid Fevers, than Valetudinarians.

Hence Hippocrates, L. 1. *Aphorism.* 3, advises to beware of an Excess of Health, for the same Strength of Constitution which was sufficient to bring the Blood and Juices to such a Degree of Perfection, will at last exalt them into a Disease. And Celsus tells us, that a full State of Health is to be suspected: *Ergo si plenior aliquis, & speciosior, & coloratior factus est, suspecta habere sua bona debet. Quæ quia neque in eodem habitu subsistere, neque ultra progredi possunt, fere retro, quasi Ruina quadam, revolvuntur.*

Hippocrates thinks it prudent to subtract something from a State of Health arrived at the utmost Perfection, because, as it is not possible it should remain long without Alteration, and cannot mend, it must necessarily grow worse. But with all Deference to so great an Authority, I must remark, that Nature has Resources of more Importance for the Preservation of Life, and Health, than any Assurances which Art can afford her, and from which she draws Help upon these Occasions. Thus in Case of too much Fulness of Blood, an Hemorrhage lowers the Habit to such a State, as Hippocrates advises us to reduce it to by Art. If the Juices are so much exalted, as to tend too much to an *Alcalescence*, the Acrimony attending this State, before it becomes sensible by any ill Consequences frequently stimulates the Glands of the Skin, and thus causes its own Evacuation by an increased Perspiration; or else, if it happens to affect the Glands of the Kidneys, it is carried off by Urine; but if it falls upon the Liver, the most likely Part to receive it first, or the Pancreas, or the Glands of the Stomach, and Intestines, the Danger is prevented by Vomiting, or a Diarrhoea, or both, sufficient for the salutary Purposes above-mentioned; and hence the popular Opinion, founded on the Experience of all Ages, that a Looseness in the Spring and Summer is salutary. Thus we see this Acrimony so much to be dreaded, is frequently under the Conduct of a well regulated animal OEconomy, its own

Antidote, and the Means of preserving, instead of interrupting Health. But here we must suppose no Excesses are committed, and regular Exercise is used.

5. Long Fasting. For, if the Blood is not perpetually diluted with fresh Chyle, it will contract an *Alcaline* Acrimony, and the Breath will become foetid, till in the end a Fever and Death ensue from this Putrefaction.

6. A Stagnation of any Part of the Blood or Juices.

Because all Animal Juices, which stagnate, follow their natural Tendency, and putrefy.

7. Great Heat, whether of the Season, or Climate; external, or internal; natural, or artificial.

8. Violent Agitation of the Blood. Because it produces Heat.

9. Excessive Exercise, especially if long continued.

When any of these Causes, or many of them conjointly, have produced an *Alcaline* Putrefaction, it is manifested by the following Signs, in the Primæ Viæ.

1. Thirst.

It is observable that Nature, or rather the Author of Nature, has given to all Animals a certain Sagacity, to enable them to distinguish Aliments which would be noxious to them, from those which are salutary; and to direct them to the Means of curing the Disorders they labour under. This, in Brutes, is called *Instinct*; and as we find the same Propensions calculated for the same good Purposes in Mankind, I think we may properly enough call them by the same Name.

In the present Instance, Thirst is raised, that is an Inclination to drink large Quantities of small diluting Liquors. Now these Liquors dilute the *alcaline*, putrid, acrimonious Salts, relieve the present uneasy Sensation, and dispose the putrefying or putrefied Matter to be discharged out of the Stomach and Intestines, either by Vomit, or Stool. But if the Propensity is to acid Liquors, which is generally the Case, these Acids, when mixed with the putrid Salts, destroy them, and are both together converted into a neutral Salt.

It is remarkable, that taking internally volatile, *alcaline*, animal Salts, as Salt or Spirit of Hartshorn, raises a Thirst, in the same Manner, and for the same Reasons.

2. An utter Loss of Appetite, and an Aversion for *Alcalescent* Aliment, particularly of that Sort of Aliment, which originally caused the Disorder.

This is another Instance of the Instinct above-mentioned; or rather, of the Protection of Providence, which watches over us in Sickness as well as Health. An Appetite would be prejudicial, when the Stomach is in such a Condition, as not to be able to digest the Aliment taken into it; and *Alcalescent* Aliment would increase the Disorder.

3. Nidorous Eructations, or Belches which affect the Mouth with the Taste of putrefied Eggs.

Because a Portion of the putrid Salts, and rancid Oil, is excluded together with the rarefied Air.

4. Putrid Sordes upon the Lips, Teeth, Tongue, Palate, and Fauces, which affect the Organs of Taste with a Sensation of Bitterness, because animal Oils, when they grow rancid, become bitter; or perhaps this Taste may be caused by the Bile too much exalted, and tending to Putrefaction.

5. A Sickness at the Stomach, from the Stimulation of the acrimonious Salts, especially at the Sight, or even Idea of *Alcalescent* Aliment near to a State of Putrefaction. This Stimulation increased, causes a Discharge of the putrefied Matter by Vomit, which is salutary, when the Disorder proceeds only from a Putrefaction of the Aliment in the first Passages; but if from a Putrefaction of the Liver, Pancreas, or any other of the Contents of the Abdomen, it is sometimes a very bad Symptom. When this *Alcaline* Acrimony affects the Intestines, it stimulates them to a Discharge of their Contents by a Diarrhoea, which is also the Means of Cure, when the Putrefaction is confined to the Aliment contained in the Stomach and Intestines; but is often fatal, when caused by large Putrefactions in any of the Viscera.

Fish that has been kept too long before it is eaten will cause a plentiful Diarrhoea; and a very small Quantity of putrefied Egg will have the same Effect, by stimulating the Intestines.

6. This *Alcaline* Acrimony produces a spontaneous Lassitude, and universal Uneasiness; a troublesome Sense of Heat, and inflammatory Iliac Pains.

The Effect of an *Alcaline* Putrefaction in the Blood is its Dissolution into an *Alcaline* acrimonious Fluid; the watery Particles separate from the other Principles and exhale; the finest Part of the Oil grows rancid; the rest of the Oil joining with the Earth, they form together tenacious Obstructions in the Vessels to which they adhere; and the Salts no longer uniformly mixed with the diluting Water, softening Oil, and neutral Earth, become acrid and corrosive. Hence the Fluid circulating in the Vessels, which in order to be fit for Nutrition, and the Exigencies of the animal OEconomy, must be mild, and destitute of all Acrimony, is, in the present State, very far from being accommodated to these salutary Purposes; but, instead of that, stimulates, abrades, and carries away a Part of the Solids; and corrodes and destroys the extremely minute Vessels,

Vessels, to which those of the Brain are above all others subject, whence a Train of Symptoms which are usually called nervous, as Deliriousness, Convulsions, Comas, or Want of Sleep.

This Corrosion and Destruction of the internal Parts is nothing more than what may at any Time be produced on the external Skin, by confining a small Quantity of animal, *Alcaline Salts*, for a short Time, to any Part of it, for it will then act as a Caustic, and raise an Escar. This may serve as a seasonable Caution to those who wantonly accustom themselves to smell to volatile Salts, especially those which have their caustic Acrimony exalted by Lime in their Distillation; for when a Part of these is drawn into the Lungs, it may, and without Dispute has, very bad Effects on the tender Membrane which lines the Lungs.

In the State of the Blood mentioned above, the Liquors secreted from it are scetid; and the Urine is high coloured, approaching to Redness, in Proportion to the Degree of Putrefaction prevailing, and the Patient necessarily labours under a continual burning Fever.

From this Account of an *Alcaline* Putrefaction in the Blood, it is easy to perceive, that the Consequences must be a Disturbance, Depravation, or utter Destruction of all the Actions, whether natural, animal, or rational; an intire Alteration in the Circulation, and consequently in the Secretions, and Excretions which depend thereon, with general, or local Inflammations, which, if the Putrefaction is considerable, must terminate in Suppurations, or Gangrenes, Sphacelations, and Death.

The different Parts of the Body which are affected by this *alcaline* Putrefaction, make some Difference in the Cure. Thus, if the *Alcaline* Aliments, taken in Quantities too large for the digestive Powers, putrefy in the Stomach and Intestines, and produce the Effects mentioned above, the most rational Method of Cure is to procure their Discharge, either by a Vomit or Purge, or both; and in this the principal Symptoms must be our Guide; for if from these we learn the Stomach is affected, a Vomit is to be given; but if the putrefied, or putrefying Aliment, is protruded into the Intestines, a Purge will sometimes be sufficient to promote their Exclusion. Proper Vomits, in this Case, are warm Water, green Tea, Infusions of Carduus, or Ipecacuanha, in the Quantity of half a Dram; and Purges of the saline Kind seem best adapted for this Purpose; because as they increase the natural Tendency to a Diarrhoea, and thereby carry off the offending Matter, they at the same Time relieve the Symptoms, by destroying a Part of the Acrimony. Both Vomits and Purges must be repeated, according as the Continuance of the Disorder shall make them appear necessary. In general one Vomit, but repeated Purges are required.

I have met with a popular Remedy for an Over-charge of the Stomach by *alcalescent Aliment*, of too much Efficacy to be omitted; it is the Runnet with which Milk is curdled, in order to make Cheese. Runnet is thus made; the first Stomach of a Calf is salted and dried, or else preserved in Brine; this Brine, or an Infusion of the dried Stomach in cold Water, is the Runnet. One or two Spoonfuls of this Brine in half a Pint of cold Water, or an Infusion of a Piece of the dried Stomach about two Inches square for a few Hours in the same Quantity of Water, if drank, is said to take away all the uneasy Sensation caused by the stimulating Acrimony, and to promote the Expulsion of the offending Matter, either by Vomit, or Stool. It would perhaps be somewhat difficult to demonstrate the specific Action of the Juices in the Stomach of a Calf, by which Milk is curdled; but we find in Fact, that this Effect is produced, both in the Stomach of a Calf whilst it is alive, where all the the Milk it takes is found curdled, and in Milk wherewith the Infusion of the same Stomach is mixed, even after the Death of the Calf. I am equally at a Loss to account for the salutary Effect of Runnet, considered as such, upon a human Stomach under the ill Impressions of *alcalescent* Aliments putrefying therein. But I am sensible that the Salt, which preserves the Calf's Stomach from Putrefaction, will also have a very good Effect upon the Aliment putrefying in the Stomach, destroy totally or in Part the *alcaline Acrimony*, and consequently relieve the Symptoms caused thereby; but whether all the good Effects of Runnet as a Medicine depend on the Salt, I will not take upon me to determine; I am, however, certain upon my own Knowledge, that it is an excellent Medicine in the Case above-mentioned.

When a Tendency to this Putrefaction is got into the whole Habit, and prevails in the Blood and Juices, the Cure is much more difficult and tedious, and the Disorder is attended with a much greater Degree of Danger. And as almost all acute Distempers whatever are either raised originally by, or else accompanied with a greater or less Tendency to an *alkaline* Putrefaction, the Regimen and Medicines proper to destroy or curb this *Alcalescence*, are of the utmost Importance to the Art of Healing. The Regimen, however, is most to be regarded, for upon this the Cure principally depends.

With Respect then to the Cure, Bleeding seems proper, as it relaxes and diminishes the Action of the Solids upon the remaining Mass of Fluids, which lessens the Attrition betwixt the

Solids and Fluids, and betwixt the Particles of the Fluids with each other; now, as Attrition is one great Cause of Heat, and Heat a great Promoter of Putrefaction, Bleeding promises fair to remove at least one principal Cause thereof.

In such Cases also Rest must be strictly enjoined, and an Abstinence from all Sorts of Motion rigorously persisted in. Because every Degree of Motion proportionally hardens the Fibres, and accelerates the Circulation of the Blood; this increases the Attrition betwixt the Solids and Fluids, and betwixt the Particles of the Fluids with each other, and consequently promotes Heat, the Parent of an *alcaline* Putrefaction, and all its Consequences.

Warm emollient Baths, Fomentations, and Clysters, are also of Service, as they relax the Fibres, and thereby help to remove one considerable Cause of Heat; and as the absorbent Vessels take up a Portion of them, they become farther serviceable by diluting the Blood.

With Respect to the Air which the Patient respires, it should be temperate and refreshing; if too hot, it increases the Tendency to Putrefaction; if too cold, by contracting the animal Fibres, it is consequentially productive of internal Heat.

Hence the Reasons are very plain, why all Heat beyond Temperateness, whether natural, and produced by the Climate, or Season; or artificial, and generated either by Fires, too many Bed-cloaths, or hot Medicines, must necessarily be pernicious in all Distempers, where there is a Tendency to an *alcaline* Putrefaction.

Our next Care must be to saturate the Blood and Juices with Aliments which are *acescent*, which have a strong Tendency to become acid when taken into the Stomach, or which are actually acid. Such are Milk either alone, or diluted with Water; Whey, and Buttermilk.

Bread, which has been fermented, is another Aliment of the *acescent* Kind, but if it has been much fermented, it is actually acid. Of this great Varieties of Foods may be prepared, by boiling it with Water, till it is of such a Consistence, as answers the End proposed, and afterwards adding to it other *acescent* Ingredients, as Wine, or the crude, or prepared Juices of Fruits. The most common of these is called *Panada*.

Many Sorts of Aliments, exceedingly proper when there is an *Alcalescence* of the Juices, are also prepared from farinaceous Vegetables, particularly Barley and Oats. The Ptisan of the Antients, so famous in all Ages, was made of Barley husked, and boiled in Water, and seems to have been a Kind of Gruel, which obtained different Names, according to some Circumstances to be taken Notice of hereafter. The Word is derived from *πρίσσω*, which signifies to peel, or take off the Husks, this being the first Part of the Process for its Preparation, but the French have, through an unpardonable Error, applied the Name of *Ptisan* to any Sort of medicinal Decoction.

Amongst farinaceous Vegetables Boerhaave enumerates the following:

Wheat.
Barley.
Oats.
Rye.
Rice.
Buck Wheat, or Frumentum Saracenicum.
Millet.
Mays, or Indian Wheat.
Panick.
Spelt Wheat.
Pistachio Nuts.

Of these boiled in Water, and digested for a considerable Time, till they acquire a Tendency to Acidity, many Sorts of Food may be contrived, very proper in an *alcaline* State of the Juices. Decoctions and Emulsions of these, drank in large Quantities, are of considerable Service; first, as they are in some Degree saponaceous, and dissolve Obstructions in the Vessels, which Water alone cannot act upon. Secondly, as they dilute the Juices inclinable to an *Alcalescence* with an *acescent* Fluid. Thirdly, as they relax the Solids. And, Fourthly, as by their oily Softness they envelope, and obtund the *alcaline* Acrimony, and, thereby rendering it mild, prevent its Effects in the Body.

I must not omit observing, that *acescent* Aliments in general seem more healthful than those which are *alcalescent*, and are less subject to form Obstructions, provided they are taken in Quantities proportioned to the Strength of the digesting and assimilating Organs, and by People inured to habitual Labour and Exercise.

Thus Homer celebrates the Hippimolgi, a Northern Nation, whose usual Food was Milk, for Longevity. And the Mountaineers of Great Britain, who generally live on Milk, and Cakes made of Oatmeal, fermented till they grow quite sour, are remarkable for Health, Strength, Activity, and living to a very great Age, and are seldom or never visited by epidemical Distempers, in any considerable Degree. And what Virgil says of a Northern Nation is something to our present Purpose:

— *Pocula*

Pocula lati
Fermento atque Acidis imitantur Vitea sorbis.
Talis Hyperborea septem subjecta Trioni
Gens Effræna Virum Riphæo tunditur Euro.

There is another Class of Vegetables of excellent Service, when the Juices tend to an *alkaline* Putrefaction. I mean the Summer or Autumnal Fruits, when perfectly ripe.

Boerhaave mentions the following :

Oranges.
 Lemons.
 Elder-Berries.
 Cherries of all Sorts.
 Citrons.
 Garden Cucumbers.
 Garden Gourds.
 Figs.
 Strawberries.
 Pomegranates.
 Jujubs.
 Apricocks.
 Peaches.
 Melons.
 Mulberries.
 Apples.
 Sweet Plums of all Sorts.
 Currants of all Sorts.
 Raspberries.

I do not know why the illustrious Author has omitted Grapes, Tamarinds, and some others of the like Kind.

Of these considerable Uses may be made. For they may be boiled, or roasted, and eaten occasionally ; or their Pulp, or crude Juices, may be mixed with Panadas, Gruels, or other acefcent Aliments. Or else the Juices, expressed after baking, or boiling them with a very small Quantity of Water, may be mixed with Food, or given as a Medicine, first adding to them the Quantity of Sugar which shall be judged sufficient. And it must be observed, that boiling, or baking Fruits, destroys a great Quantity of the elastic Air which they contain when crude, makes them sit more easy upon the Stomach, and thereby renders them more fit for medicinal Purposes.

With Respect to Fruits, it is a very great Error to condemn them in general as unwholesome ; for, on the Contrary, when thoroughly ripe, they are the most admirable Remedies that perhaps Nature has furnished us with, and never pernicious unless taken in Quantities too excessive, and disproportioned to the Powers of Digestion. Nothing can be better adapted to check that Tendency to an *alkaline* Putrefaction, which the Juices are subject to contract during the Summer's Heat. We scarcely meet with a more powerful Remover of Obstructions, than the Juices of ripe Fruits, if taken in Quantities sufficient, frequently repeated, and these continued for a considerable Time. For the Juices of Fruits, when neutralised by the Heat of the Sun, that is, when perfectly ripe, are saponaceous, and capable of dissolving Obstructions in the Vessels which no other known Fluid is able to act upon effectually. Every common Observer can judge, that Eruptions on the Surface of the Body are salutary, and promise a future State of Health. The Reason of this is, that when the obstructing Matter, which forms Concretions in the small Vessels, is dissolved, and reduced to Particles small enough to circulate with the Blood, the vital Powers find Means of discharging them by the intestinal, or urinary Glands, or else dispose of them by the Pores of the Skin ; now when it happens that the Particles of Matter to be discharged are somewhat too large to perspire, they stick in the perspiratory Vessels of the Skin, and there suppurate, for Suppuration is one Way which Nature takes to disburthen herself of what is useless or offensive. Hence those salutary Eruptions, which frequently appear on the Skin in various Parts of the Body, after a plentiful Use of Summer-fruits, have been erroneously deemed, by many, the pernicious Effects of those Fruits, which in Reality acted the Part of a Medicine, and removed Obstructions, which otherwise might have produced a Disease. It is farther to be remarked, that a Diarrhoea, or Looseness, after the Use of the above-mentioned Fruits, is so far from being dreadful, provided it keeps within due Bounds, that it does good Service to the animal Economy, by carrying away the Matter of Obstructions previously dissolved by the saponaceous Juices of the said Fruits. But it is prudent to bake, or boil these Fruits, both for the Reasons given before, as also, because the Fire destroys the Eggs of Insects, which are sometimes deposited in them, and because it brings them to a more exact Neutrality, the Sun being scarcely sufficient in our Climate to render them perfectly ripe.

In an *Alcaliescence* of the Juices, watery Liquids, drank warm especially, are also of Service, though endued with no saponaceous Quality, as they relax the Solids, dissolve the Salts, and carry them out of the Body, and contribute to preserve the Blood in a State of Fluidity.

As to Medicines, they may be contrived in various Forms, either from native vegetable Acids, as the Juices of Oranges,

Lemons, Crabs, and many other acid Fruits, or the Essential Salts of acid Plants, as of the Sorrels.

Fermentation also furnishes us with many valuable Medicines in this Intention. Thus Moselle, or Rhenish Wines, which incline to Acidity, are admirable, when diluted with a sufficient Quantity of any saponaceous Fluid. Thus also Vinegars of all Kinds, are of considerable Use, properly diluted ; and of these Medicines may be made extremely resolvent, and absterfve, by mixing them with Water, or Honey, or both, or infusing in them Vegetables suited to answer particular Intentions, as Squills, in making Oxy-mel of Squills.

Many Medicines also of excellent Virtues are, and more might be, prepared by inspissating the Juices of Fruits perfectly ripe to a Jelly or Rob, and amongst these none excels Rob of Elder, a Medicine which deserves the highest Encomiums.

By Distillation we procure another Class of Medicines which powerfully destroy a Tendency in the Juices to an *alkaline* Putrefaction. These are the acid Spirits of Sal Gemmæ, Sea-salt, Nitre, Vitriol, and Sulphur, commonly called *Oil of Sulphur by the Bell*. But these must be taken diluted in a great Quantity of Fluid, and they are never proper, unless in Cases where a great Tendency to Putrefaction renders the milder vegetable Acids ineffectual, as in the Plague, and some very bad Kinds of the Small-pox.

There is another Class of Medicines of very great Importance in the Case before us ; I mean, the natural, or artificial neutral Salts. The natural neutral Salts are Nitre, Sea-salt, and Sal Gemmæ. The two last are seldom used, except in Clysters ; but Nitre is, or at least ought to be, an Ingredient in almost every Medicine, given with a View of checking the Progress of an *alkaline* Putrefaction. It is well known, that these Salts preserve all animal Substances from Putrefaction ; and Nitre has a remarkable Property of preserving the Fluidity of the Blood, either in, or out of the Blood-vessels. Nitre has also a Power of resolving Concretions already formed, and of expelling the obstructing Matter thus resolved by the proper Emunctories, as by the Glands of the Intestines, Kidneys, or Skin ; it is also extremely penetrating, and thus it appears possessed of every good Property, that can render it an eligible Remedy in all Disorders where Danger is to be apprehended from an *alkaline* Putrefaction, that is, in most acute Distempers. It is usually given in a Powder or Bolus, or dissolved in some proper Fluid.

Artificial neutral Salts may be made from almost every different Sort of Acid, impregnated or saturated with any Sort of *Alkali*, either fixed, or volatile. The *Acid* and the *Alkali* must be joined in such a Manner that neither may prevail over the other. Whilst they are mixing together, a considerable Effervescence arises, and the Acid is destroyed by, and destroys the *Alkali*, and then both, thus united, form a Body very different in every Property, Characteristic, and medicinal Effect from the Parent Salts.

Neutral Salts the most generally used in Practice, are the *Tartarus Vitriolatus*, made as directed by Boerhaave (See *TARTARUS VITRIOLATUS*) a Medicine very different from that directed under the same Name in our Dispensatory, though made of the very same Ingredients. The *Tartarus Regeneratus*, and *Tartarus Tartarizatus* of the same Author.

Many extemporaneous Prescriptions of a neutral Fluid may easily be contrived to very good Purposes. Thus, a Scruple of Salt of Wormwood will saturate about half an Ounce of Juice of Lemons ; or about ten or twelve Grains of volatile Sal Ammoniac will saturate half an Ounce of distilled Vinegar ; either of these mixed with an Ounce of some simple Water, and rendered agreeable by a few Drams of a proper Syrup, and the same Quantity of some compound Water, makes a very pretty Draught of considerable Efficacy, which may be repeated as Occasion requires, for Example every four Hours.

These neutral Medicines deserve the same Encomiums which I have given above to Nitre, and for the same Reasons.

From what has been said above with Respect to the Causes, and Cure of Diseases from a Tendency in the Juices, or any of them, to an *alkaline* Putrefaction, it appears, that in all Diseases where Danger is to be apprehended from the aforesaid Putrefaction, any acid Excretions are to be esteemed good Symptoms, as they are certain Evidences that the *alkaline* Acrimony is destroyed. Thus in Disorders of the Stomach from such a Cause, acid Eructations of Wind witness, that the Cause of the Distemper is almost, if not intirely removed. And thus in acute Distempers, Sweats which have an acid Smell, have been remarked to be of good Presage.

It has been observed, that many who have recovered of the Plague, and pestilential Fevers, have been affected as their Health returned, with a saltish Taste in their Mouths, somewhat like that of Sal Ammoniac ; the Reason of this appears to be thus : It is well known in Chymistry, that a putrid *alkaline* Salt, when united with an *Acid*, forms a neutral Salt somewhat resembling Sal Ammoniac. Now when the Juices have been loaded with such a putrid Salt, as it happens in the Plague and pestilential Fevers, when this Salt is saturated with an

an Acid, the *alkaline* Acrimony is destroyed, and the Patient by Degrees recovers; and then all the Excretions are infected with the muriatic Salt above-mentioned, like Sal Ammoniac, and amongst the rest the Saliva; hence a perpetual Taste, like that of Sal Ammoniac, in the Patient's Mouth; and hence he fancies all Sorts of Aliments salted.

The Forms of Medicines calculated to destroy an *alkaline* Acrimony are infinite. I shall therefore only give a few by Way of Example:

Take of Oats, bruised with the Husks, two Ounces,

Boil these in three Pints of Water to two, and add to it when strained,

Of fresh Citron, or Lemon Juice, an Ounce.
Of Cinnamon-water, two Drams.
Of Syrup of Mulberries, an Ounce.

Let the Patient use this for his constant Aliment. *Boerhaav. Mat. Med.*

Take of Oats peeled, two Ounces.

Boil them in three Pints of Water to two, strain it, and let the Liquor stand in a gentle Heat for twelve Hours, or till it grows somewhat acid; then add,

Of Syrup of Violets, an Ounce and half.
Rhenish Wine, half a Pint.
Simple distilled Water of Citron-peel, an Ounce and half.

To be used like the preceding Decoction. *Boerhaav. Mat. Med.*

Take of peeled Oats, three Ounces.

With a sufficient Quantity of Water make an Emulsion; to a Pint and half of which add,

Of purified Nitre, half a Dram.
Syrup of Violets, an Ounce.
Vinegar of Squills, two Drams.

An Ounce or two of this may be taken frequently. *Boerhaav. Mat. Med.*

Take of Oxymel of Squills, three Ounces.

Vinegar of Squills, two Drams.
Tincture of Myrrh extracted with Vinegar, a Dram.
Simple Succory-water, six Ounces.

Half an Ounce of this may be taken every Hour. *Boerhaav. Mat. Med.*

Take of Vinegar boiled to the Consistence of Honey, half an Ounce.

Fine Honey, an Ounce.
Syrup of Succory, an Ounce and half.
Simple Fumitory-water, six Ounces.

To be used as the preceding. *Boerhaav. Mat. Med.*

Take of Rob of Currants and Elder, each two Ounces.

Simple Oxymel, an Ounce.
Spirit of Salt, twenty Drops.
Barley-water, two Quarts.

Let the Patient use this at Pleasure for his constant Drink. *Boerhaav. Mat. Med.*

Take of clear Barley-water, twenty-six Ounces.

Rhenish Wine three Ounces.
Syrup of the five opening Roots, two Ounces.
Rob of Elder, six Drams. Make a Decoction.

Let the Patient take three or four Quinces of this every three or four Hours.

Take of Crystals of Tartar,

Pure Nitre,
Vitriolated Tartar perfectly neutralised, according to Boerhaave's Method, of each ten Grains mix into a Powder.

Let one of these be taken every four, or six, or eight Hours, with a Dose of the preceding Decoction, or some other acedent Liquor.

As what has been said in the preceding Pages will explain, and abundantly confirm many important Points of Doctrine relative to the Cure of acute Diseases, which are delivered by Hippocrates, in his Treatise *περί διαφόρων ἐξέσεων*, I shall finish this Article with that incomparable Piece, which Dr. Friend, a very good Judge of these Subjects, calls *One of the most valuable Remains of Antiquity*. And indeed, he might have given it much greater Encomiums.

I believe it impossible to do the excellent Author of this Piece Justice in our Language, or any other, at least I am willing to think so, because I am sensible of the Defects of

my own Translation. If, however, I have rendered this most valuable Piece intelligible to those who cannot understand it in the Original, I am certain it will be of no inconsiderable Benefit to Mankind.

I must remark, that the latter End of this Treatise does not seem to have arrived to us as Hippocrates left it; for it is probably either mutilated, or has had something added to it by an Interpolator, much less judicious than the Author of the rest, at least it wants the finishing Stroke of that masterly Hand which completed the other Parts of this incomparable Piece.

Hippocrates begins this important Treatise with blaming the Method of the Physicians of the Cnidian School, who seem to have been the Rivals of those of Cos. This Introduction is somewhat obscure, and the more so, because we have not the Cnidian Sentences, which he finds Fault with.

It should seem that the Cnidians had described Distempers very accurately, but omitted taking proper Notice of many Circumstances which occur in every Disease, which are worthy of Remark, because they inform the Judgment of the Physician, and point out the Indications, or the Method to be pursued in order to cure the Disease. Amongst these are the Age, Strength, and Constitution of the Patient; his Manner of living; the natural Evacuations which promote, or retard the Cure; the Concoction of the morbid Matter; and, in short, every other Circumstance, which can assist us in foreseeing the Event of a Disease, and directing a proper Regimen.

HIPPOCRATES ON REGIMEN IN ACUTE DISTEMPERS.

The Authors of the *Cnidian Sentences*, as they call their Work, have indeed given us an accurate Account of what Patients suffer in every Disease, and of the Events of some Distempers: And so far any Man, however ignorant of the Art of Medicine, might write, and not be mistaken, provided he perfectly understood each Patient's Representation of his own Case. But as to the Prognostics which cannot be learned from the Sick, though it is the Business, and Accomplishment of a Physician to be well versed in them, they are in a great Measure neglected, as are also many Circumstances highly necessary in order to enable us to form a right Judgment of any Case before us.

Now since the Management of each Patient is to be regulated by a perfect Knowledge of every Circumstance relative to every particular Case, I am of a quite different Opinion, in this Respect, from what they have declared themselves to be. And I am not only dissatisfied with them on this Account, but also because they made Use of but few Remedies. They have indeed offered us Plenty of Medicines (except in acute Diseases) that purge downwards, and talked of the seasonable Use of Whey and Milk. If these Remedies were good, and proper for the Distempers in which they prescribe them, the fewer they were in Number, if sufficient for the Purpose, the higher would be their Value. But the Case is otherwise.

But in what they published afterwards, the Character of Physicians was better supported, with Respect to what ought to be exhibited in each Case. But indeed the Ancients never left any Thing worth Notice in Writing concerning a Method of Diet, but were wholly silent as to that important Point. Some of them, it is true, were not ignorant of the various Forms and Divisions of Distempers, but, while they endeavour to give us the Names of Distempers, they shew themselves mistaken. For it will be no easy Matter to number them, if we reckon, on one Hand, every Disease a Person labours under a distinct Species from another, because it differs from it in some Respect; or, on the other Hand, suppose it cannot be the same Disease, unless it passes under the same Denomination.

My Opinion is, that, in all Respects, we ought to have a strict Regard to the Rules of Art. For, if we desire that any Work should prosper and be promoted, we must proceed in every Thing relating to it with Exactness. In Things that require Dispatch, and where Delays are dangerous, our Assistance ought to be speedy in Proportion. Where Things ought to be performed after a neat and decent Manner, we are to observe Neatness and Decency. If a Case admits of an easy and gentle Treatment, we are by all Means to avoid putting the Patient to any unnecessary Pain or Torment. In short, we ought to endeavour at Improvements in every Branch of Medicine, without confining ourselves to the vulgar Modes of Practice.

I praise that Physician most, who knows how to distinguish himself, above others of his Profession, by his Skill in improving the ordinary Methods of Practice in acute Diseases, which make the greatest Havock amongst Mankind: Such are those to which our Ancestors gave the Names of Pleurisy, Peripneumony, Lethargy, Burning Fever, and other Disorders which have an Affinity with them, for these destroy the Patient, by a Fever altogether continual, which accompanies them.

M m m

For,

^a I have given *ὁρίζω τὴν ἐξέσιν ἐξ ἑαυτοῦ* a Turn somewhat different from the Latin Translation, for Reasons which the learned Reader will easily apprehend. But, as my present Business is rather to explain Things than Words, I shall attach myself very little to Criticisms of this Sort.

^b For, when there is no pestilential Distemper that rages epidemically, but only sporadical Fevers of various Kinds, more die of these Fevers than all other Diseases. The Generality, indeed, are not capable of distinguishing such as excel their Neighbours in medicinal Knowledge, and therefore they only praise, or condemn, capriciously the Cures which they see performed. And it is strongly to be presumed, that common Observers cannot understand these Fevers, because their Nature is not to be comprehended without Study. But even those who are no Physicians may easily appear to be such, particularly in the Distempers above-mentioned. For it is not difficult to learn the Names of Things usually employed about the Sick: Suppose, for Instance, any one should name the Cremor [*χρῆμα*] of Ptisan, or this or that Sort of Wine, or Hydromel, the Sounds are the same to vulgar Apprehensions, whether they proceed from a better or a worse Physician. But these Things are to be considered in a very different Light, and a Man of Skill is more especially distinguished in such Cases.

Now it is my Opinion, that such Things as are advantageous to be known, and yet have escaped the Notice of Physicians, or which are the Occasion of much Good, or Hurt, to the Persons concerned, highly deserve to be communicated to the Public. The Things unknown are as follow:

What should determine some Physicians, in acute Distempers, to persevere for ever in giving their Patients Ptisan not strained, and yet think their Method right.

Some dispute, with all the Reason they are Masters of, against allowing the Patient boiled Barley, because they apprehend it to be of very pernicious Consequence, but however strain it through a linnen Cloth, and exhibit its Juice [*χυρὸν*].

Others, again, will neither suffer the thick Ptisan, nor its Juice, to be given, some of these extending the Prohibition to the seventh Day of the Patient's Illness, others of them to the full Determination of the Crisis.

Our Physicians are not very fond of proposing such Questions as these, or if they were so ingenuous as to propose their Doubts, the Answers, perhaps, are not at Hand.

Mean while, the Art itself falls under Reproach and Disregard, among the Vulgar, always too subject to conclude from Difficulties, and contrary Practices, that there is no such Thing as *real Medicine*. For in acute Distempers, for Example, our Artists differ among themselves to such a Degree, that those very Remedies which one of them shall prescribe as the best, another shall think improper to be used. It is upon this Account, that the Art of Medicine, seems very like Divination. For Augurs [*μαῦροι*] look upon the same Bird which appearing on the right Hand, they embrace as a good Omen, to be a bad one, if it appears on their left; not to mention many other Singularities belonging to the Art of Augury; mean Time there are others of the same Profession, who interpret the very same Omens in a Manner directly contrary to the former.

I however affirm, that the Regimen, in acute Diseases, is a Speculation extremely noble and excellent, [*πράγματι*] and that it bears a near Relation to many of the most important Points in the Art of Medicine. For Regimen is capable of doing great Things for those that are sick; of preserving Health to those, who already enjoy it; of procuring a good Habit to those who exercise themselves; and of contributing, much to the Attainment of that desirable State, to which the Wishes of every wise Man tend.

Ptisan seems to me; preferable to all Aliment of the frumentaceous Kind, in these acute Distempers, and I commend their Judgment who have given it this Preference. For it has a Kind of Viscosity, which is smooth and equal, soft, and slippery, moistening, causing no Thirst, but conveniently washing whatever wants Elution. It is no Astringent, raises no Disturbance in the Stomach during Digestion, nor Inflations in the Belly, having lost that Property in the Boiling, where it swelled as much as its Nature would permit.

^b This Passage Sydenham seems to have had in View, when he says nearly the same Thing.

^c Aretæus speaking of a Pleurisy, says, Ptisan is to be preferred before all Foods. The best Way, in the Beginning of the Disorder, is to use the Cremor of it, strained from the solid Part, and seasoned only with Honey, without those Drugs which are commonly used to give Relish and Variety to the Ptisan, for at this Time the Cremor alone is sufficient. It serves for the Purposes of moistening and warming, and is effectual in dissolving and detaching Phlegm, and expels upwards, by Spitting, what ought to be expelled that Way, at the same Time gently loosening the Belly. Its Smoothness is both grateful to the Palate, and makes it easily swallowed; and its Viscidity allays Heat, purges the Membranes, digests Coughs, and mollifies all the Parts. Such are the Virtues of Barley. *Aretæus* *περί Διπν.* c. 5. *lib. 1. Cap. 10.*

It appears that Hippocrates was convinced by Experience, that the Ptisan was an admirable Aliment in acute Diseases; but he does not seem to have been acquainted with all the Reasons why it was so. As it relaxes, it removes one great Cause of Heat, the grand Promoter of an *Alcaline* Putrefaction. During the Time it boils, and digests, it acquires a Tendency to Acidity, and is, on this Account, a proper Aliment in acute Diseases, where the Juices tend to an *Alcaline* Putrefaction. And again, as it is in some Degree saponaceous, it will dissolve Obstructions, which Water alone will not act upon.

^d The Inanition here hinted at, is that which is brought about by long Abstinence from all Sorts of Aliment; a Practice which some of the Antients gave into, however contrary to Reason, and unsuccessful in Practice.

^e In the Course of this Treatise, Hippocrates explains himself more at large, with respect to Honey, and Wine, which are both Accescent. Mean Time it must not be imagined, that he advises Wine unmixed, for the Antients seldom drank it without fix, or at least four Times as much Water, even in Health. This will be explained more amply in the Sequel.

^f The Sense of the Author is, that if the Tongue and Mouth appear moist, and the Patient begins to expectorate laudably very soon in the Disease, the Crisis will be speedy in Proportion: But on the contrary, if these Evidences of Humectation appear late, the Crisis will be slow.

^g The whole Ptisan seems to be the Ptisan not strained.

^h The great Advantages of Relaxation in inflammatory Disorders, are specified under the Article INFLAMMATIO, which see.

Death.

A Physician, then, who allows his Patients the Use of Ptisan in these Distempers, need not enjoin Inanition, or Emptying of the Vessels, as it is called, though but for one Day, unless he finds himself obliged to intermit it for the sake of a Purge or a Clyster.

Those who are accustomed to two Meals in a Day, may have their Ptisan twice in like Manner; but such as usually make but one Meal, are to eat their Ptisan once the first Day, but may, in Time, be brought by Degrees, to take it twice a Day, if it shall be thought convenient. But here you are to observe, that it is not to be given the Patient at first, in too great Quantities, nor too thick, but only enough to comply with Custom, which requires that something should be taken, and to prevent the too great Inanition of the Vessels. As to the Increase of the Ptisan, with respect to Quantity, in the Progress of the Disease, if it is attended with any uncommon Degree of Dryness, too much must not be given; but Honey and Water, or Wine, or any Thing else that shall be judged proper, must be drank, before the Ptisan is exhibited. What is most proper in each particular Case, I shall specify hereafter.

If the Mouth be moist, and what is discharged from the Lungs laudable, and without any bad Quality, the Quantity of forbile Food (Ptisan) to be allowed the Patient is, in one Word, to be increased considerably. For a quick and plentiful Humectation indicates a speedy Crisis, but that which is slow, and sparing, the contrary.

And this is so far the true State of the Case. But we shall pass over many Things that may happen very seasonably to furnish us with Prognostics, and resume the Consideration of them hereafter. The more plentiful the Purgation, (of the Lungs) the more freely may the Patient take his Ptisan till the Crisis, and it will be proper to continue it for two Days after the Crisis, for Fear of Relapses in those Cases, particularly where there is an Appearance of a Crisis on the fifth, seventh or ninth Day; always having Regard to the equal or unequal Number of Days. After this (two Days from the Crisis) it will be prudent to give the Patient Ptisan in the Morning, and in the Evening to proceed to more solid Food.

The Advantages which the Patient reaps by the immediate Use of the whole Ptisan are principally these: The pleuritic Pains immediately cease spontaneously, so soon as the Patient begins to spit any Thing considerable, and to expectorate [*ἐκκαταίρειν*]. Besides, the Purgations (of the Lungs) are far more perfect, and the Patients escape with less Putrefaction (of the Lungs) than if they had made Use of any other Regimen. The Crises are also more genuine, are performed with less Difficulty, and are less subject to Relapses.

Ptisan ought to be made of the finest Barley, and to be very well boiled especially if any Thing, unless the strained Juice, is to be used. Besides the other Virtues of Ptisan, the Lubricity which this Manner of preparing it gives the Barley, renders it innocent, when eaten. For Ptisan never causes Obstructions, nor oppresses the Thorax; it is very lubricous, excites no Thirst, is very easy of Digestion, and is extremely relaxing, provided it be well boiled; all which Properties render it beneficial in acute Diseases; inasmuch that a Patient will frequently be injured by too scanty an Allowance of this forbile Aliment.

But in Case the Patient is costive, and takes Ptisan without previous Evacuation of the Excrement, if he was before in Pain, it will be increased; if easy, a Pain will immediately succeed, with a Shortness of Breath, which must have bad Effects, as it dries the Lungs, and creates a deal of Fatigue and Uneasiness in the Hypochondria, lower Belly, and Diaphragm. Moreover, in a continual Pain of the Side, that will not yield to hot Fomentations, and where nothing is expectorated but a viscous uncooked Matter, if, instead of attempting to remove the Pain, either by Bleeding or Purging, as shall seem most convenient, we should give them Ptisan, we by this Conduct hasten

Death. For these, and such like Reasons, those who make Use of the whole Ptisan, die on the seventh Day, or perhaps sooner, some delirious, and some suffocated with an Orthopnoea, and Stertor (*Rattling in the Throat*).

The Antients believed such Patients blasted [βλάται] on Account of these Symptoms, and were confirmed in their Opinion by observing the Sides of the deceased to be livid, as they would have been from a Blow received. But the true Cause of this Lividness was, the Patient's dying before the Inflammation of the Pleura and Lungs was resolvedⁱ. These immediately become asthmatic [πνευματικές]; for by much and frequent Respiration, the Matter to be discharged from the Lungs being rendered highly viscous without Concoction, as was observed before, prevents Expectoration, and, sticking to the Aspera Arteria, causes a Stertor; and when the Distemper arrives at this State, it is generally fatal^k. For the viscid Matter obstructs the Passage of the Air into the Lungs, and makes immediate Expiration necessary. And thus both conspire to hasten the Fate of the Patient; for the viscid Matter, by Adhesion, causes a short Respiration, and this Shortness of Respiration renders the viscid Matter (πυκνόν) more and more glutinous, and prevents it from growing slippery, and moveable.

Nor is the unseasonable Use of Ptisan alone, thus pernicious, but the Eating or Drinking of any Thing that is less proper than Ptisan, is attended with still greater Inconveniencies. Whether a Person be injured by the Use of the whole Ptisan, or its strained Juice (χυλῶν), the Remedies are much the same, as also if the Injury is received from neither of these, but from an improper Use of Liquids; some Circumstances may however occur, which may induce a Necessity of varying the Means of Relief. The Methods to be pursued are as follow:

If a Man finds himself seized with a Fever soon after a Meal, and before he has had a Stool, whether his Indisposition be attended with Pain, or not, let him abstain from Ptisan, till he has Reason to think that there is a due Secession made of the Aliment into the lower Intestines. If he has any Pain, let his Drink be Oxymel, warm if it be Winter, but cold in the Summer; or if his Thirst be considerable, Hydromel (μελικρῆμα) much diluted with Water. After this, if the Pain continues, and there is any Appearance of Danger, let him not proceed to the Use of Ptisan, till after the seventh or ninth Day, provided his Constitution be strong; and even then, let him not take it too thick, or in too large Quantities. If the Food of his former Meal does not secede, to make Room for what he has just now eaten; if he be robust, and in the Vigour of his Age, give a Clyster; but if his Constitution be weak, a Suppository is preferable, unless he has Stools spontaneously. As to the proper Times for giving the Ptisan, this Maxim ought to be observed, both in the Beginning, and throughout the whole Progress of the Disease, that whenever the Feet are cold, we abstain from giving any Ptisan, but especially from the Use of Liquids; but when the Heat descends to the Feet, then is the Time for the Patient to take them. And it will always be prudent to consider the Observation of this Point of Time, as a Thing of the greatest Importance, in all Diseases, but principally in those which are acute; and more especially in such as are attended with a high Fever, and great Danger of Life.

To proceed, the strained Juice of the Ptisan (χυλῶν) is generally to be made Use of first, and after that the Ptisan itself, always having a strict Regard to the Rules laid down above. And it will not be amiss to attempt the Resolution of the Pain in the Side, whether it happen in the Beginning, or in the Progress of the Disease, by hot Fomentations^l: The best of this Kind, is warm Water in a leather Vessel (ἀσκῶν)^m, or in a Bladder, or in a copper or earthen Vessel, first applying something soft to the Side, in order to protect the Part which is in Pain from being hurt. The Application also of a large, soft

Sponge, squeezed out of warm Water, is of good Service; but whatever is made Use of as a Fomentation, must be covered with a Cloth, both to preserve its Efficacy the longer, and to keep the Vapour from being drawn into the Lungs, unless, as it may sometimes happen, we have some End to answer by doing the contrary. It will be useful also to apply Barley and bitter Vetches [ῥυβί] macerated in Vinegar, which is so tempered, as to be a little too sour for Drinking, sewed up in Bags; or Bran may be used after the same Manner. For a dry Fomentation, Salt, and torried Millet in woollen Bags, are very proper; for Millet is lenient and relaxing; and such emollient Fomentations as these resolve, and relieve Pains that reach even to the Clavicleⁿ. If the Pain is not eased by hot Fomentations, they are not to be long continued, for that dries the Lungs, and promotes Suppuration. But if the Pain at the Clavicle gives a sufficient Indication, or if there is a Sense of Weight at the Arm, about the Breasts, or above the Region of the Midriff, we are, without Delay, to open a Vein on the Inside of the Bending of the Elbow, and, as expeditiously as may be, to bleed without sparing, till the Blood runs of a much redder Colour, or, instead of pure and red, runs livid, for either of these Alterations is usual^o. But if the Pain is situated below the Midriff, and there be no Indication at the Clavicle, the Belly must be loosened with Black Hellebore [μύλαρον ἰδιόβηρον] or purple Sea Spurge [πικρῶν] mixing with the Hellebore wild Carrot [δακρυκόν] or Hartwort [στρίδα] or Cummin, or Anise, or some other of the fragrant Herbs; but with the Spurge the Juice of Silphium [ἐπὶ σιλφίῳ] for though here be a Mixture of Simples, they are of a like Quality, and produce one uniform Effect. But black Hellebore works better than Spurge, and is more effectual in promoting a Crisis, but Spurge more powerfully dispels Wind; both are Anodynes, and so are many other Cathartics, but these are the best that I am acquainted with. But whereas we find those Purges which are not nauseous on Account of their Bitterness, or any other disagreeable Taste, the Quantity necessary for a Dose, the Colour, or some particular Aversion of the Patient, are with good Success given in Ptisan, it will be proper to give the Patient Ptisan, and that not in a much less Quantity than usual immediately after taking a Dose of the Cathartics above-mentioned, but it is inconsistent with Reason to give forbile Aliment, during the Operation of the Purge; when that ceases, it may be taken in a less Quantity than usual, which afterwards may be increased by Degrees, if the Pain be removed, and no other Circumstance forbids it.

The same Rules will hold good with respect to the Cremor of Ptisan [χυλῶν]. For I assert, that it is much better to begin with it at first, than, after Inanition of the Vessels by Fasting, on the third, fourth, fifth, sixth, or seventh Days, except the Disease come to a Crisis within that Time; and the necessary Preparations previous to its Use, are nearly the same as those already mentioned. And these are my Sentiments, in regard to the Exhibition of Ptisan. And with respect to the Drinking any of those Liquids to be mentioned, this is my Opinion. But I know some Physicians, who act quite contrary, to what they ought, in this Affair. For their Method is, after they have first exhausted their Patient, in the Beginning of the Disease, by an Abstinence of two, three, or even more Days, then to allow them forbile Aliment, and Liquors upon this Principle, perhaps, that it seems reasonable to compensate for one great Change in the Body, by introducing another as great, and contrary. A Change, indeed, would be very advantageous, could it be brought about in a regular Manner, or the Transition made by just, and easy Stops. But as this Change consists principally in the Allowance of Food, if this be not regulated, the Sick will be greatly injured, and those, most of all, who are indulged the Use of the whole Ptisan. Those also who

ⁱ A Mortification is the true Cause of this Lividness, and this frequently happens, when the Inflammation is not resolved early enough to prevent it.

^k This Passage, and the Prognostic upon it, is extremely just, though the Way of accounting for the Danger of such Cases is none of the best.

I have more than once known Prognostics made in inflammatory Cases of the Breast, where the Event has not much promoted the Reputation of the Prognosticator. Thus a Patient has had a violent Pain arising from an Inflammation of the Pleura, and has, on a sudden, become entirely easy, and upon this the Person who had the Conduct of the Case, has rashly given Assurances, that the Case was no longer dangerous, which the Event has in a very few Hours contradicted, the Patient being seized with a Shortness of Breath, which Hippocrates expresses by πνευματικές, and this has, to the Confusion of the unwary Practitioner, terminated in Death. In such Cases, when the Mortification is once begun, the Patient is no longer in Pain, as it frequently happens in external Inflammations. Hence we may learn to beware of sudden Changes in acute Cases, particularly Inflammations.

^l I believe every Physician is sensible of the great Importance of Fomentations applied to the Part in Pain, in all inflammatory Diseases, and perhaps nothing has been invented, since the Time of Hippocrates, equally capable of assisting Evacuations, and internal Remedies, in the Resolution of the Inflammation.

^m The ἀσκῶν here mentioned, was the Hide of some Beast, sewed up in a Manner to make it hold Water, or any other Liquor.

ⁿ V. Cels. Aet. Acut. L. 2. C. 19.

^o Whatever has been said by Sydenham, Hoffman, and almost every other modern Author, has been founded upon what Hippocrates says on this Subject.

Sydenham lays the whole Stress upon Bleeding, and an acescent Diet, much the same as Hippocrates recommends.

As to Diet, I forbid all Flesh-meats, and the smallest Flesh-broths, and advise the Patient to sup Barley broth, Water-gruel, and Panada, and to drink a Ptisan, made of Pearl-barley, Sorrel, and Liquorice Roots, &c. boiled in Water, and sometimes small Beer. Sydenham de Pleuritide.

^p Hippocrates was not acquainted with some lenient and gentle Cathartics, which we now make Use of with great Success in acute Cases. He therefore recommends giving the brisk and stimulating Purges which he knew, in such a Manner, as to take off a Part of their Stimulation, which should seem to be in some Degree effected, by the soft and lubricous Particles of the Ptisan, given immediately after a Dose.

take the Cremor will be injured, as will those who drink only Fluids; these last, however, will be the least Sufferers. We may furnish ourselves with Reasons, in this Case, from the Consideration of the Diet of Persons in Health. For if there appear great Differences in Foods, as in other Things, particularly in their Changes, with respect to Persons in a State of Health, may we not very well suppose them to differ not a little, in regard to the diseased, and especially such as labour under acute Distempers? Now it is obvious to be understood, that a bad, but constant and uniform Course of Diet, both with respect to Meat and Drink is, upon all Accounts, a safer Way to preserve Health, than a great and sudden Change, from a bad to a more wholesome Regimen. So they who are used to eat twice, or but once, in a Day, find themselves injured, and disordered, by altering their old Custom. Let one who is not used to dine make a Dinner, he immediately finds himself not well, and feels a Heaviness over all his Body, with a Weakness, and Inactivity; and if he takes besides his usual Supper, he is molested with sour Eructations, and sometimes loose Stools, when the Stomach is burdened beyond its usual Custom, having been usually suffered to dry, and clear itself, and not obliged to the Fatigue of two Intumescences, and two Concoctions. In this Case therefore the Change is to be compensated by another, that is, by Sleep after Dinner, as in the Night after Supper, taking Care to avoid the Inconveniencies of Cold in the Winter, and Heat in the Summer. If a Person cannot sleep, let him walk about gently for a considerable Time without standing still; and let him make little or no Supper, drinking sparingly, and nothing aqueous. The same Person would be more affected, if he was to make three Meals in a Day to Satiety, and the oftener he eat, the more Inconvenience would he find from it. And yet there are some who eat plentifully three Times a Day, and bear it very well, because they are accustomed to it. And others who eat but twice, if they should miss their Dinner, find themselves weak and feeble, and too much dispirited for any Business, and are besides affected with a Pain at the left Orifice of their Stomach [*καρδιαγίγας*] their Viscera seem in a Manner suspended, they make hot Urine of a pale Colour, and their Excrements are baked within. Some taste a Bitterness in their Mouth, their Eyes grow hollow, and they feel a Pulsation at their Temples, and a Coldness in their Extremities. Again, there are many, who, unless they have had a Dinner, dare not venture on a Supper, because a Supper would oppress their Stomach, and create a greater Degree of Restlessness, during the succeeding Night, than if they had also made a Dinner. Since, therefore, a Change in Diet from the usual Custom, though but for half a Day, produces such Effects in healthy Persons, it seems the safest Way, neither to add to, nor retrench from, our usual Fare. If any one therefore, contrary to his usual Way of Life, eats but once a Day, and, after causing an Inanition of the Vessels by fasting all Day, takes his usual Quantity of Food for Supper, he will probably find himself ill, and disordered, on Account of missing his Dinner; and after Supper he will feel a Heaviness, which, however, will be much greater, if he eats more than his usual Quantity for Supper. But if after Inanition of the Vessels, by a longer Fast, he should then suddenly make a hearty Supper, he will find himself yet much more oppressed by it. Whoever, therefore, has exhausted himself by Fasting, cannot take a better Method to compensate for his Day's Abstinence, and recruit his Strength, than in the first Place to guard against Cold or Heat, and not fatigue himself with Labour, because he is in no Condition to bear any of them. Then at Supper, let him eat much less than usual, and no dry Food, but Aliment of the more moist Kinds. Again, let his Drink be by no Means aqueous, nor less in Proportion to his Food. The next Day let him make a slender Dinner, and so, by gentle Degrees, return to his customary Way of Living. Some are, more than others, affected by these Irregularities, particularly those who abound with Bile in their superior Parts; for those who are phlegmatic are, on all Accounts, better qualified to sustain unusual Abstinence; and for this Reason, if they make but one Meal a Day, they are better able to bear it.

We have said enough to prove that great and extraordinary Changes in Things which relate to Nature, and Habits, are the principal Springs of Diseases. It is utterly unsafe, therefore, to attempt unreasonable and extravagant Inanition of the Vessels, or to offer Food in the Height of a Disease, attended with Inflammation, or, in short, to make any sudden Alteration, in any Respect, during the whole Course of the Distemper.

Relative to what has been explained, much might here be said in regard to the Stomach, and Things of the like Kind. As that we bear with Ease what we are accustomed to, whether Meats or Drinks, though bad in their own Nature; and, on the contrary, are incommode with the best of Foods to which we have never been used. The Effects also of eating much Flesh, contrary to Custom, or of Garlick, or Silphium, or its Juice, or Cabbage, or any others of that Kind, which are endued with some remarkable Virtues might be taken Notice of; but it is no Wonder, that these should, more

than other Things, disturb, and incommode, the Stomach; especially if we have observed, what Disturbances, Intumescences, Inflations, and Gripings, are excited only by Maza, in a Stomach never used to it; what a Thirst, and sudden Repletion, are caused by hot Bread, by Reason of its drying Quality, and slow Digestion; also what various Effects are produced by the finest Bread, as well as the coarser Sort [*ἐπιγέμιστοι*] when eaten contrary to Custom; and by Maza, when dryer, moister, or more viscous than ordinary; what are the Effects of new Polenta [*ἀλφίτα*] on those who are unused to it; and how it operates, when stale, with such as are accustomed to eat new; what are the Consequences of Wine and Water, being contrary to Custom, on a sudden, exchanged one for another; or of the sudden abandoning a Custom of drinking our Wine pure, or diluted, with Water, for the contrary; for one will be sure to produce a Redundance of Humidities in the Stomach, and Flatulencies in the lower Intestines; and the other a Palpitation of the Heart, Heaviness of the Head, and Thirst. White and black Wines, exchanged one for another, in Violation of Custom, will cause many Alterations in the Body, though both are equally spirituous; so that we have little Reason to wonder, that sweet, and generous Wines [*γλυκύ; καὶ ἐνδοθὲς οἶνον*] when exchanged on a sudden, are not capable of producing the same uniform Effects.

On the contrary it must be confessed, that in acute Diseases some Instances occur, where a Change with Respect to Diet may be induced, without any Alteration in the Body as to Strength or Weakness, considerable enough to render an Addition to, or Subtraction from the Aliment necessary. In these Cases, however, Regard must be had to the Strength of the Patient, the Nature of the Disease, the particular Constitution, Way of living, and usual Diet of the Sick, both as to Meat and Drink. The Addition of Food is much less to be regarded, but an intire Subtraction of it is frequently of Use, provided the Patient has Strength sufficient to support him under such an Abstinence, till the Distemper arrives at its utmost Height, and is ripe for a Crisis: And in what Cases this is to be put in Practice I shall specify hereafter. Much might be added, relative to what has been already said, in Confirmation of these Sentiments; but, as no Illustration is of equal Force with the Thing itself, I have been endeavouring to set in a just Light by similar Instances, I shall proceed to the direct Doctrine, I would inculcate, as of more Importance with Respect to Instruction.

In the very Beginning of acute Diseases, some have been indulged in eating the first Day of the Distemper, others the second Day; some have taken any forbile Aliment, Cyceon not excepted [*κυκεων*]. Now this Method of Diet was far from being the best that might have been contrived, Errors, however, of this Kind are less pernicious, than if, after two or three Days Abstinence enjoined, and a consequent Inanition of the Vessels, the Patient had entered on such a Regimen the fourth or fifth Day: Much more unsafe is it, after all these Days Abstinence, and Inanition, to allow such a Regimen on the succeeding Days, before the Disease is prepared for a Crisis. Such a Method would manifestly prove fatal to most, unless the Distemper were very favourable. But Errors in the Beginning are not so destructive, but more easy to be retrieved than those which are committed in the farther Progress of the Distemper. This, therefore, seems to me a very good Argument why we should not, during the first Days, injoin an Abstinence from this or that Sort of forbile Aliment to those who will be under a Necessity of taking some Sort or other on the succeeding Days. Wretchedly ignorant, and ill-advised, then are those Patients, who enter upon the Use of Barley-Pisum after two, three, or more Days Abstinence, because it is in such Case prejudicial to them. Nor do they who use only the Cremor [*κρεμα*] understand that it does them a Mischief, when they begin to make Use of it at an improper Time. However, they are wise enough to know that the Use of Barley-Pisum, before the Disease is prepared for a Crisis, is very hurtful to those who were accustomed only to the Cremor; and they have Caution enough to avoid it. All these Things are strong Evidences that Physicians use a preposterous Method with their Patients, with Regard to their Aliment, and injoin Abstinence, and consequently Inanition, where there ought to be none; and from these make a Transition to forbile Liquors, by equally wrong Steps, and, for the most Part, exactly counter to the Method required: Sometimes they pass from Inanition of the Vessels to Sorbition, when on the contrary they ought to have proceeded from Sorbition to Inanition, if the Exacerbation of the Disease required such an Alteration. On Account of such Errors it sometimes happens that bilious Crudities are drawn from the Head, and Region of the Thorax; these are succeeded by Want of Sleep, which prevents the Concoction of the morbid Matter; the Patients grow dejected, morose, and delirious; their Eyes sparkle, and look wild; their Ears ring; their Extremities become cold; their Urine is unconcocted; what they spit grows thin, salt, and sincere [*ἀσπύριον*] as to Colour, and little in Quantity; Sweats break out about the Neck, accompanied with Anxieties, and Restlessness; their Inspiration is, as it were, interrupted, quick,

and very large. Their Eye-brows are in some Measure enlarged, they fall into troublesome, fainting Fits, toss off the Bed-Cloaths from their Breasts, and are seized with Tremors of the Hands, and sometimes of the under Hip; and, if these Symptoms appear early, they portend a high Delirium, and generally Death. They, who escape, come off with an Abscess, an Hæmorrhage at the Nose, or a Discharge of thick Pus by Expectoration, and no other Way.

And indeed I do not find Physicians so sagacious, as to distinguish in Diseases betwixt a Weakness caused by an Inanition of the Vessels, or some other Incentive, and one that is owing to the Pain, and Violence of the Distemper; nor do they discern the various Impressions and Affections of every Kind, which have their Spring in the Nature, and Habit of Individuals, though on the Knowledge or Ignorance of these Things Health or Death depend. Now that Physician does the greatest Mischief, who, mistaking his Patient to be weakened with Inanition, orders him Drink, or increases his Allowance of forbile Aliment, or other Food, when the unhappy Person is exhausted, and debilitated by the Anguish, and Fury, of the Disease. It is an unpardonable Error not to distinguish when a Disorder proceeds from Inanition, and, in Consequence of that Ignorance, to restrain the Patient from Food. Such a Blunder indeed carries Danger with it, but much less than that before-mentioned, but is however much more ridiculous: For, if another Physician, or one utterly ignorant of Medicine, should come, and be informed of what had happened, and should administer Meat and Drink, which the other had forbid, he would, no Doubt, be thought to have relieved the Patient. Such Events bring public Disgrace upon an Artist, in the Opinion of Men; for, in this Case, the before-mentioned Physicians, or the illiterate Person, seem in a Manner to have raised a dead Person to Life.

For these Reasons we shall describe the proper Signs of these Affections by which they may be distinguished; and indeed they have some Affinity with what happens in regard to the Stomach. If the whole Body has rested a long Time, contrary to Custom, it will not immediately increase in Strength; and if it be suddenly put to Labour, after a long Course of Inactivity, it is plain, that this sudden Change must be attended with some Inconvenience. The same Opinion are we to form of each Part of the Body. For the Feet will be in like Manner affected, and likewise the other Limbs, if they should suddenly be put upon strong Exercise, after a long Series of Rest. After the same Manner will the Teeth, the Eyes, or any other Part of the Body, suffer in the like Case; and even a soft Bed, as well as one that is hard, will give Uneasinesses to those who are not used to them; and a Bed, contrary to Custom, made in the open Air, hardens the Body. But it may be useful to illustrate this Doctrine by Instances: Suppose then a Man contracts an Ulcer in his Leg, not bad enough to give him much Concern, yet too considerable to be slighted; and that his Flesh is not very difficult, nor yet remarkably easy to heal. Suppose also, that he is immediately laid up for it the first Day, and never moves his Leg, he will by this Method, indeed, avoid an Inflammation, and it will be much sooner healed, than if he gently walked about during the Cure. But if he has a Mind to rise, and try to walk on the fifth, sixth, or any farther Day, he will find himself worse afflicted, than if he had kept himself upon his Legs, and walked gently about from the Beginning. And if he should on a sudden put himself upon hard Labour he will suffer vastly more, than if he had laboured in that Manner all those Days, while he was under Cure. So that all these Things, taken one with another, will still concur to prove abundantly, that every great, and beyond all Measure, sudden Change, either one Way or another is pernicious.

The Stomach suffers various Ways, from the sudden Reception of too much Food, after a great Inanition of the Vessels by Abstinence; and all the other Parts of the Body will receive much more Damage, if set to Labour after a long State of Rest, than by a Change from a plentiful Diet to Inanition, provided, however, the Body is indulged with Rest upon this Change.

If therefore a sudden Transition is made from Exercise, and Labour, to Indolence and Inactivity, the Stomach must be suffered to rest in Proportion from the Fatigue of Digestion; otherwise, for Want of this Precaution, the Body will

not fail to suffer, either by an universal Heaviness, or some other Disorder.^a

I have been very copious on this Subject of Alteration in Diet, either one Way or another, because of its great Importance, not only in general, but with Respect to the particular Subject we are upon, that is, a Mutation from an Inanition of the Vessels to Sorbitions in acute Diseases. A Change there must be, according to my Opinion, but by no Means to Sorbitions, before the morbid Matter is concocted; or some Sign, either evaculatory or stimulating, appears about the Intestines, or about the Hypochondria, which shall presently be described.

Obstinate and continual Want of Sleep is the Cause of Cruelties, and Indigestion, both as to Meat and Drink; but a Change to the Contrary, dissolves the Body, and induces Debility, and Heaviness of the Head.

RULES for the USE of WINE, WINE and WATER, WATER, OXYMEL, and BATHS.

The several Sorts of Wines, as the Sweet, Generous, White; and Black, as also Honey and Water, Water, and Oxymel, are distinguished with regard to acute Diseases, in the Manner following: Sweet Wines are not so subject to make the Head heavy and intoxicate, as the more generous, but are more productive of Stools. Yet they augment Tumors of the Viscera, as of the Liver, and Spleen, more than the other, and are not proper for bilious Constitutions, because in these they increase Thirst. They also generate Flatulencies in the superior Intestines, which do not affect the lower, as they might be supposed to do, for Flatulencies caused by sweet Wines are not of a penetrating Quality, but remain about the Hypochondria; sweet Wines do not, however, provoke Urine as the generous White Wines; but more powerfully promote Expectoration; but it is to be remarked, that if sweet Wine causes Thirst when drank, it increases Expectoration less than the other, but if it causes no Thirst, more.

Generous White Wine has received the greatest Part of its Praise and Censure in the Account of Sweet Wine. It better penetrates to the Bladder than the other, is a Diuretic and powerfully breaks through Obstructions [*καταρρέπτικος*] and must therefore be very good in acute Diseases. For though it be less fit for other Purposes than the former, yet its Faculty of purging by Urine frees the Body from Diseases, if it be managed properly. These Rules will hold good in regard to the Advantages and Prejudices attending the Use of Wine, though they were unknown to former Physicians.

Deep-coloured and black austere Wines may be used in these Distempers under the following Limitations, that is, if the Head is not affected with a Heaviness, there is no Delirium, if Expectoration is free, if there is no Stoppage of Urine, and the Excrements be somewhat moist, and like Abrasions [*ξυσματωδίστα*]. Under these and the like Circumstances especially, we may venture to change White Wine for these.

We are also to take Notice, that Wine, well diluted with Water, is less hurtful to the superior Parts, and those near the Bladder; but Wine, less diluted, is best for the Parts about the Intestines.

Of HYDROMEL, or HONEY and WATER.

But Hydromel [*μυλίκριον*] drank throughout the Course of the Disease, in acute Distempers, is less proper for such as abound with Bile, or have an Intumescence of the Viscera [*αικροχόλις ή μεγάλισπλάγχθυσις*] than for others. However it does not excite Thirst so much as sweet Wine, but mollifies the Lungs, and promotes Expectoration moderately [*αμύδης άναγωγή*] and mitigates a Cough. It has also somewhat of a saponaceous Quality, which is subject to render the Spit more viscid than it ought to be. Hydromel is also a good Diuretic, provided there be no Impediment in the Viscera. It promotes also the Discharge of bilious Excrements by Stools, which are sometimes laudable, at other Times too much saturated with pure Bile, and frothy, particularly in bilious Constitutions, and those who labour under Obstructions in the Viscera [*μεγάλισπλάγχθυσις*].

Hydromel then, much diluted, is better adapted to promote Expectoration, and to mollify the Lungs; but the least diluted is most effectual in purging downward frothy Excrements, and such as are too hot, and too much saturated with pure

N n

Bile:

^a In this Manner great Numbers of People of Distinction, whose Affluence enables them to live without Labour, and Exercise, contract Distempers, both acute and chronical, which destroy them before the Period which their Constitutions would, with good Management, permit them to arrive at. For having spent their Youth in a Series of Rural Sports, which require strong Exercise, when satiated with these, they on a sudden become indolent, and make an imprudent Transition from strong Exercise to Inactivity; mean Time, however, they preserve that Appetite which they had before acquired by Labour and Exercise, and which was an Happiness at that Time, but becomes a Misfortune in the present State of Inactivity, as it overcharges the digestive Organs, and the whole animal System, and produces Obstructions, the Causes of all Distempers whatever.

These Gentlemen would find their Account in continuing a Degree of Exercise sufficient to digest, perfectly assimilate, and at last carry off, the Quantity of Aliment which their Appetites enable them to take into their Stomachs with Satisfaction; or else to substitute an Abstinence in Proportion to the Diminution of Exercise.

¹ This Sentence seems misplaced, as it has no Relation to what immediately precedes it. In all Probability it should come in amongst the Examples of the Inconvenience of sudden Changes.

Bile. But it must be confessed, that such Sorts of Stools are attended with some Inconveniences, for they do not allay the burning Heat of the Hypochondria, but rather increase it, and cause a Restlessness, and continual Tossings of the Limbs, as also an Exulceration of the Intestines and Anus, for which Remedies will hereafter be specified.

In these Distempers, therefore, discarding forbile Aliments, if we make Use of Hydromel instead of all other Drink, you may practise with Success, and seldom have the Mortification of miscarrying. In what Cases it is proper, and where not, and for what Reasons, has, in a great Measure, been explained already.

But Hydromel is condemned for reducing those who drink it to an extreme Weakness, the Consequence of which is thought to be Death, in a very short Time. Now this Censure was passed upon it, on Account of those who starved themselves to Death; for some there are, who make it their only Drink, as if this was the proper Use of it. This is not, however, the true State of the Case, for Hydromel drank even alone, is much stronger than Water, unless it happens to purge. And it is, in some Respects, stronger than white, thin, small, and unfragrant [ἀρίσμου] Wines, and, in some Respects, weaker. For there is a great Difference betwixt the Meracity [ἀνεπτότης] of Wine, and that of Honey, if you compare them with regard to Strength. Let a Person drink double the Quantity of Wine that he takes of Honey, he will certainly find himself much stronger from the Honey than from the Wine, unless the former purges him, and incomparably more Excrements will be produced from the Honey, than from the Wine. Yet if any one should drink Hydromel after Ptisan, it would produce in him an extraordinary Repletion and Inflation, which would have no friendly Influence upon the Viscera about the Hypochondria; whereas, if it were drank before the Ptisan, it would have no such bad Effects, but would in some Measure be of Service.

Hydromel boiled has a much finer Aspect than when crude; for it becomes bright, fine, white, and pellucid; and yet I do not know, that it acquires any new Virtue; for it is no sweeter than the crude, if the Honey was good; but it is weaker, and produces fewer Excrements, which are Properties no way necessary to Hydromel, in order to its Usefulness. Boiled Hydromel is fittest for Use, if the Honey is bad, impure, black, and ill-scented, for the Boiling, in a great Measure, corrects these ill Qualities.

Of OXYMEL.

The Drink, called *Oxymel*, you will find to be beneficial in these Distempers on several Accounts; for it promotes free Expectoration, and renders Respiration easy. We must however have Regard to the following Considerations in giving it: That which is extremely acid, must have some very considerable Effect upon the Spit which is not brought up without Difficulty; now if it dislodges and renders lubricous that, which adhering to the Bronchia causes a Wheezing, and Alteration of Voice, and if it dilates the Bronchia, it must considerably ease the Lungs, because it relaxes them. If, I say, it is capable of these good Effects, it must necessarily be exceedingly beneficial. But sometimes the Contrary happens, and what is highly acid, is so far from promoting Expectoration, that it renders the Spit more glutinous, and so does Mischief. And those are worst affected by it in this Manner, who, besides other bad Symptoms, can neither cough nor spit out what is contained in the Bronchia. In this Case then we are to consider the Strength of the Patient, and, if Things are in a promising Situation, to give a little of it very warm, beginning with a small Quantity, and proceeding gently, never exhibiting too much at one Time. What is, but a little acid moistens the Mouth and Throat, brings up Spit, allays Thirst, and is beneficial to the Hypochondria, and the subjacent Viscera. For it prevents any Mischief from the Honey, by correcting what is bilious in it; it dissolves Flatulencies [φύσιν κατὰ χητικόν] and provokes Urine; yet it fills the lower Part of the Intestine with too much Moisture, and causes Abrasions. Sometimes, however, it is prejudicial in acute Disorders, especially as it prevents a Platus from making its Way through the Body, [φύσαν καλὴν περιαιρῶσθαι] and forces it to recur upwards [παλινδρόμειν πρὸς] besides it weakens the Body, and refrigerates the extreme Parts. And these are all the ill Effects of Oxymel that are worth Notice. It is convenient to be given, a little of it to drink at Night, upon an empty Stomach, before the Sorbition [πρὸ ροφημάτων] though there is no Reason why it may not be given, at a considerable Distance of Time after Supper. As to those, whose Regimen consists of Fluids only, without forbile Food, I esteem it not proper for them to be perpetually taking Oxymel, especially because of the Abrasion and Exasperation of the Intestines, to which they are the more subject for their being void of Excrements, and still more on Account of the Inanition of the Vessels. Add to this, that it may subtract something from the strengthening Properties of Hydromel.

But if any one should fancy, that the frequent Use of Oxymel might be of Service in all Distempers, let him make it with a very little Vinegar, just enough to give it a Taste, for then what might be hurtful in it, will be rendered innocent, and its beneficial Qualities will be preserved intire.

In short, the acid Quality of Vinegar renders it more proper for bilious than melancholy Constitutions. For the Bile, as being bitter, is dissolved, and converted into Phlegm when exalted by Vinegar; but Melancholy is fermented, elevated, and multiplied by it, [πολλαπλασιάζεται] for Vinegar increases Melancholy. But Vinegar is far more prejudicial to Women than to Men, for it is productive of Pains in the Uterus.

Of WATER.

As to drinking of Water in acute Diseases, I know not to what Purpose it can serve; for it neither mitigates the Cough in a Peripneumony, nor is it an Expectorant [πνίγει ἀναγωγόν] but is worse, in these Respects, than other Liquors for constant Use. But a little Water drank betwixt the Doses of Oxymel and Hydromel may promote Expectoration, as it induces an Alteration in these Liquors, and promotes their good Effects, for it dilutes them in the Stomach. In other Respects, Water is not good to quench the Thirst, but increases it; and in a bilious Constitution, it turns to Bile, it is bad for the Hypochondria, and more than usually mischievous, bilious, and weakening, when it arrives at the inferior Intestines; it increases the Heat of the Liver and Spleen, when they are inflamed, and fluctuating causes an uneasy Sensation in the Stomach and Intestines. For, by Reason of its Coldness and Indigestibility, it passes slowly, and neither produces Stools, nor provokes Urine. It is somewhat hurtful also, because it is by Nature void of Excrements. But if it be drank when the Feet are cold, it causes these Inconveniencies in a greater Degree, as Circumstances incline it to this or that bad Effect.

However in Disorders which threaten a vehement Oppression of the Head, or a Delirium, we are totally to abstain from Wine, and in such Cases it will be best to give Water, or, if any Wine is allowed, it must be very small white Wines, that have not the least Flavour, and a small Quantity of Water must be drank after it, by which Means the Strength of the Wine will have the less Effect upon the Brain and Senses. But the proper Subjects for drinking Water, with the right Seasons for indulging them in, or restraining them from the free Use of it, and when it is to be drank cold, and when warm, has been in Part declared before, and shall be more fully specified in its Place.

As to other Kinds of Liquors such as that made of Barley [χριθινόν] or those which are made from green Herbs, Raisins, or Husks of Grapes, or are prepared from Wheat, Cnicus [κνίκος], *Holy Thistle* Myrtle-berries, Pomegranates, and other Things, the proper Seasons of using these shall be assigned them under the Disease itself in which they may be serviceable, and we shall take the same Method with regard to other compound Medicines.

Of BATHING.

Bathing might be useful in many Distempers, in some by frequent Use, in some otherwise; and sometimes it cannot be used so frequently as it ought, for Want of Conveniences; for we shall find in few Houses the necessary Preparations with suitable Attendance; and, unless a Man be well and thoroughly washed, he may receive considerable Injury. The Bathing-room should be without Smoak; there should be great Plenty of Water, and the Ablutions should be frequent, but not over copious unless the Case requires it. Deterfion, I think, may very well be omitted; but if it must be used, it ought to be done hot, and the Patient must be well rubbed with a deterfory Medicine [σμήγμα] in a much more copious Manner than is generally thought necessary, and must have Plenty of Water poured upon him, and that Water expeditiously changed for fresh. The Way to the Solium should be short, and made easy both for going in, and coming out. The Person who bathes, ought to be composed and silent, and do nothing himself, but suffer others to wash and rub him. Water also of different Degrees of Heat must be in Readiness [μτακίρασμα] the Perfusions are to be quick, and the Sponge is to be used instead of the Strigil, and the Body is not to be quite dry, before it is anointed. But the Head ought to be dried, as much as is possible, by rubbing it with a Sponge; and neither the Extremities, nor the Head, nor any Part of the Body ought to be refrigerated. The Bath is not to be used just after a Sorbition or Drinking, nor are Aliments or Drink to be taken just after Bathing. Great Consideration is here to be taken of the Patient, as whether he was a great Lover of Bathing, or accustomed to it while in Health; for such are the more desirous of the Bath, and find themselves the better for Bathing, and are not so well without it.

The Bath, generally speaking, is more proper in a Peripneumony, than a burning Fever, for it mitigates the Pain of the Side, Breast, and Back, maturates and brings up the Spit, facilitates

states Respiration, and relieves Lassitudes, being a Mollifier of the Limbs, and outer Skin, provoking Urine, resolving Heaviness of the Head, and moistening the Nostrils.

These are the Advantages to be reaped from Bathing, where all necessary Accommodations are in Readiness; but when one or more of the Requisites are wanting, it is to be apprehended that this Kind of Remedy may do more Hurt than Good; for a Negligence of the Attendants in any one Circumstance is capable of considerable Mischiefs.

In Distempers where the Belly is unseasonably loose, Bathing is not at all proper, nor where it is unseasonably costive, without previously relaxing it. Persons much enfeebled are not to bathe, nor those who are affected with a Nausea, Vomiting, or bilious Eructations; or who have an Hæmorrhage at the Nose, except it was in less Quantity than the Occasion required; and you know the Occasions. But if the Hæmorrhage was too little, it will be convenient to bathe, whether it be for the Benefit of the whole Body, in other Respects, or only for the Sake of the Head.

When there is, therefore, a convenient Apparatus, and the Patient seems well able to bear it, Bathing may be used every Day, and it will not be amiss if those who are fond of Bathing, use it twice a Day. Those who feed on whole Psitan, can with more Safety venture upon the Bath, than such as make Use of the Cremor only, though it may on some Occasions be allowed to the last. But Bathing is least proper for such as take only Fluids, though there are Occasions when even these may be permitted to bathe.

From what has been wrote upon this Subject, it may be readily understood under what Kind of Regimen Bathing may be beneficial, and with what it will not agree. Bathing can never be proper for such as are in Want of Necessaries, or Conveniences, to render it of Service to them; but such as are plentifully furnished with whatever may be commodious for this Purpose, may bathe, provided the Symptoms of the present Disorder render it proper, and likely to be of Service.*

OF FEVERS, and FERRILE DISEASES.

The Summer produces a Burning Fever [*καυσός*] when the Veins, being parched and dried by the Fervor of the Season, attract to themselves an acrid and bilious Ichor [*ιχὴρ*]. A violent Fever attends with great Pain, and a Sense of Lassitude in the Bones. It generally happens after a long Journey, and long Thirst, when the dried Veins attract to themselves hot and acrimonious Rheums.

Under this Disorder the Tongue becomes rough and dry, and very black; the Parts about the Belly are affected with a biting Pain; the Excrements are very liquid, and of a pale Colour; there is a vehement Thirst, and Want of Sleep, and sometimes a Delirium.

Let the Patient have as much Water, and boiled Hydromel, much diluted, as he will drink; if there be a Bitterness in the Mouth, it will be proper to give an Emetic and Clyster; if these do not procure Stools, purge him with Asses Milk boiled. Give nothing salt or acrimonious, for the Case will not bear it, nor any forbile Liquor, till the critical Day be past. If there happens a considerable Hæmorrhage from the Nose, or genuine critical Sweats, with white and thick Urine, and a

light Sediment; or if an Abscess be formed, there is a Solution of the Disease. If there be a Solution without these Symptoms, the Patient will relapse, or be seized with a Pain in the Hips or Legs, and will spit a gross Matter, if he recovers.

There is another Kind of Burning Fever, which is attended with a Looseness, an intense Thirst, a rough, dry, and saltish Tongue, a Suppression [*ἀποκράση*] of Urine, Want of Sleep, and Coldness of the Extremities.

This Disease is never critically determined without an Hæmorrhage from the Nose, or an Abscess about the Neck, or a Pain of the Legs, with a Spitting of gross Matter after the Looseness stops, or a Pain at the Ischium, or a Lividness of the Pudendum. The Tension of a Testicle also is a Symptom of an approaching Crisis. Give the Patient attractive, forbile Aliment†.

In acute Diseases, if the Distemper be violent, and the Patients strong, and in the Flower of their Age, bleed. In a Quinsy [*στισαγγή*] or any pleuritic Disorder, promote Expectoration with soft Linctuses. If the Patient appears weakened by too plentiful Bleeding, instead of repeating it, administer a Clyster every third Day, till he is out of Danger, and wants no farther Remedy but Abstinence.

Tumors of the Hypochondria not caused by an Interception of the Spirits, (*perhaps Hysterics*) Distensions of the Diaphragm, a laborious Respiration, with a dry Orthopnea, and without any internal Suppuration, but proceeding from an Interception of the Breath (*a Straitness of the Ramifications of the Aspera Arteria, preventing the Ingress of the Air*) but particularly violent Pains of the Liver, Oppressions of the Spleen, other Inflammations, and Disorders that are caused by painful Tumors in the Parts above the Diaphragm; all these cannot be resolved by Purging at first, but are more tractable, if the Cure is began by Bleeding. After this proceed to Clysters, unless the Distemper be very violent; but Regard must be had to the Safety and moderate Operation of Cathartics, which are made Choice of after Bleeding‡.

Whoever, in the Beginning of an inflammatory Disease, attempts the Cure by Cathartics, does not in the least diminish the Tension, and Inflammation of the Part affected: for the Distemper, in this State of Crudity, will not yield to such Medicines; on the contrary, this Method of Treatment liquefies and wastes the sound Parts, which would otherwise resist the Distemper; and when the Body is in this Manner weakened, the Disease gets Ground, till at last it becomes incurable.

OF THE CATALEPSIS.

When a Person is suddenly taken speechless, without manifest Cause, or any evident great Disorder, it proceeds from a Stagnation of the Blood in the Veins [*φλεβῶν ἀποκρίσις*]. In this Case open the internal Vein of the right Arm, and take away more or less Blood, according to the Age and Habit of Body. This Disorder is generally accompanied with a Redness of the Face, fixed Eyes, distended Hands, Grinding of the Teeth, Palpitations, Contraction of the Jaws, Coldness of the Extremities, and an Interception of the Pulse. When a Pain comes on, there is an Afflux of black Bile, and acrimonious Humours to the Part. The internal Parts are affected with a biting Pain, as well as the Blood-vessels, which are also extremely

* There is a remarkable Blunder at this Place in the Edition of *Foetus* of 1657.

† This Sentence admirably expresses the Consequences of an alkaline Putrefaction; and the subsequent Account of a *Burning Fever*, as he calls it, is inferior to none given by later Authors.

‡ Galen could not understand what is here meant by *Attractive*; and indeed it is not very easy to find the true Sense of it.

* Sydenham has the following Passages, the Hints of which were, probably, taken from the great Author before us, and, no Doubt, Experience made him afterwards sensible of the Truth and Importance of the Doctrine here delivered.

We should not omit, that if the State of the Patient requires both Bleeding and Vomiting, it is safest to bleed first, and give the Vomit afterwards; otherwise there would be Danger, that whilst the Blood-vessels are greatly distended, the violent Motion in Vomiting might burst the Vessels of the Lungs, or hurt the Brain, and occasion a Vomiting of Blood, or a mortal Apoplexy; of which I could give some Instances, if it were proper; but my Design is only to caution. *Sydenham, de Morbis Acutis.*

But in the first Stage of epidemic Diseases, of whatsoever Kind they be, great Care must be had not to purge before Bleeding. For the Diseases, which arise from an epidemic Constitution of the Air, are either actually Fevers, or upon the least Occasion degenerate into Fevers; so that a Fever may easily be caused by the Disturbance raised in the Blood and Juices by the mildest Purgative, and the Heat succeeding it, which Nature had otherwise expelled by the usual Evacuations of the morbid Matter; as, for Instance, by a Catarrh, or an epidemic Cough, or by a Diarrhœa, when the epidemic Fever has a Tendency to that Discharge. The same may be said of any other Constitution of the Air, that disposes the Body to some peculiar Fever; which does not always actually happen, because Nature expels the morbid Matter from the Blood by some suitable Evacuation. This I affirm to be Fact, though the present Practice is to exhibit Cathartics before Bleeding, or, which is still more dangerous, without Bleeding at all.

For, though it may be objected, that, by Bleeding before Purging, the foul Humours contained in the first Passages are propelled into the empty Veins, yet it is most certain, that the Evacuation which precedes Bleeding cannot make Amends for the Injury, which the Blood receives from the Tumult raised therein by the Cathartic. And it must be owned, that a Purge, taken immediately after Bleeding, works much more gently, and heats and agitates the Blood less, than it usually does when exhibited before Bleeding: And I am apt to think that Numbers, and Children especially, have perished for Want of knowing this, or through Neglect of it.

And this I have learned from a long Course of Experience, which is the surest Guide in these Cases; and, unless Practice be regulated thereby, it were better to discard the Art: For the Lives of Men are but too much trifled with, on the one Hand, by Empirics, who are ignorant of the History of Diseases, and the Method of Cure, and only provided with Receipts; and, on the other Hand, by such idle Pretenders, as rely wholly upon Theory; whence both together destroy greater Numbers, than the Diseases would without their Assistance.

But that Method of Practice, and that only, will relieve the Patient, which deduces the Indications of Cure from the Phenomena of Diseases, and afterwards confirms them by Experience; and by this Means the great HIPPOCRATES merited the highest Reputation. *Sydenham Epistola Prima Responsoria.*

These Rules with Respect to Bleeding in acute Disorders, before Cathartics are exhibited, are of infinite Importance in the Practice of Physic; and it is much to be lamented, that they are not more regarded; for I am satisfied that Thousands are destroyed by an Ignorance, or Neglect of these salutary Cautions. I should therefore recommend it to Practitioners of every Class to have some Regard to the Authority of Hippocrates, the first and best medicinal Author, the greatest and most solid Genius that, perhaps, any Age has produced, the Preserver of Thousands yet unborn; and let them remember, that his Precepts have in this Instance, as well as many others, received the Sanction of Sydenham, the best practical Writer since his Time.

ly dried, and contracted, and being moreover inflamed, they attract the Humours to them which are set a float. Hence the Blood being corrupted, and the Circulation obstructed and prevented from being carried on in the natural Conduits, Stagnations are caused, of which Refrigerations, Vertigoes, Loss of Voice, Oppression of the Head [*καταρραγία*] and Convulsions, are the Consequences, when they affect the Heart, Liver, or Vena Cava [*τῆς φρένας*]. Hence proceed Epilepsies, and Palsies, when the noble Parts above-mentioned are thus disordered by a Flow of Humours, and dried for Want of a proper Circulation.

For such Patients, certainly the best Thing we can do is, immediately after Fomentation, to open a Vein, while the affected Spirits, and Humours are a float, for then are Remedies of the greatest Efficacy. When the Patient is a little recruited after Bleeding, a Vomit will be proper, unless he is before much relieved, always having Regard to a Crisis. And if Stools are not procured by a Clyster, purge with Asses Milk boiled, in a Quantity not less than six Pints, or, if the Constitution is robust, more than eight may be given.

Of a QUINCY.

The Quinzy happens frequently in Winter or Spring, by the Defluxion of a Multitude of viscous Humours upon the Jugular Veins, which attract the more, on Account of their extraordinary Size. This cold and viscid Humour obstructs, and renders impervious all the Passages of the Blood, and Spirits, condenses the Blood near it on every Side, coagulates it, and causes it to stagnate, being by Nature cold, and inclined to generate Obstructions.

Hence the Patients are suffocated, their Tongues are livid, round, and bent back in their Mouths, because of the Tumesfaction of the Veins underneath; an Incision being made in the Uvula, which is also called *κίον*, a large Vein, appears on each Side. These Veins, when thus turgid with Humours, press upon the Tongue, which, on Account of its Dryness, Rarity, and Sponginess, is susceptible of Impressions from the adjacent Veins, and readily imbibes the Humours with which they abound; and hence it is changed from flat to round, from well coloured, to livid, from moist, to dry, and from flexible, to stiff, inasmuch that the Patient is in Danger of Suffocation, without immediate Relief, which is to be given by Bleeding in both Arms, and opening the Veins under the Tongue, by Lambitives capable of incising the Humours, by hot Gargarisms, and evacuating a Part of the Humours by an increased Discharge of Saliva[†], and by shaving the Head. A Cerate should also be applied to the Head and Neck, and over this Wool, and the external Parts must be fomented with soft Sponges, wrung out of warm Water. The Drink ought to be Water and Hydromel, but by no Means cold; or Cremor of Ptisan, when the Danger is judged from the Crisis, to be over.

In Summer, or Autumn, when Humours descend from the Head, which are hot and acrimonious, as participating of the Heat and Acrimony of the Season; they corrode, exulcerate, and fill with Spirits, and an Orthopnea, with a great Dryness, succeeds. In this Case, the Fauces, if inspected, manifest no Tumor, the Muscles on the back Part of the Neck are fixed, as in a Tetanus; the Voice is broken, Respiration small, frequent, and not performed without Difficulty; there is an Exulceration of the Aspera Arteria, with an Inflammation of the Lungs, inasmuch that they cannot readily admit the external Air; and if the Disease do not spontaneously tend to the external Parts of the Neck, it is the more terrible, and fatal, on Account of the Season of the Year, and because it owes its Origin to hot and acrid Humours.

MISCELLANEOUS OBSERVATIONS WITH REGARD TO FEVERS.

If a Fever seizes a Person whilst the old Excrements are retained, or immediately after new Food is received, whether accompanied with a Pain of the Side, or not, the Patient is to rest, till the Food is descended into the lower Intestines; mean Time, let his Drink be Oxymel. When a Heaviness is perceived at his Loins, purge the Belly with a Clyster, or a Cathartic. After Purging, let him take first forbile Aliment, and drink Hydromel; after this, he may proceed to vegetable Food, and boiled Fish, with a little diluted Wine at Night, and diluted Hydromel in the Day-time. If the Discharges of Wind are very fetid, a Suppository or Clyster will be of Service. If otherwise, he must continue the Use of Oxymel, till the Excrement descends into the inferior Intestines, and then let a Clyster be administered.

If a burning Fever seizes whilst the Belly is laxative, if Purging appears proper, defer it the three first Days, and give the Cathartic on the fourth. After Purging, give forbile Aliment, observing the Approach of the Fever Fits, so as never to give it when the Fit has actually seized, or is just coming on, but when it ceases, and is intirely gone off, and the Disorder is at the greatest Distance from the Access of the succeeding Pa-

roxysm. But give no Drink, nor forbile Aliment, nor any Thing of that Kind, whilst the Feet are cold; but esteem it as a Matter of the greatest Importance, to wait till they are thoroughly hot, and then give what you think most proper; for the Coldness of the Feet is universally a Sign of the Approach of the Paroxysm; at which Time, if you load the Stomach with any Thing, you will do Wrong upon all Accounts, for the Disorder will hereby be considerably increased. But when the Fit is over, the Feet, on the contrary, grow hotter than the rest of the Body; and as the Feet are refrigerated, the Fever increases, and a Fire is kindled in the Thorax, which imparts Flame to the Head. For all the Heat rushing together, and exhaling to the Head, it is not at all strange that the Feet, which are by Nature of a nervous, and not fleshy Substance, should be refrigerated. Besides, their great Distance from the hot Parts contributes to their Refrigeration, when the Heat is collected in the Thorax. Again, it is consonant to Reason, that the Feet should grow hot, when the febrile Paroxysm is resolved and utterly dispersed. At this Time, the Head and Thorax are refrigerated, and for that Reason Food is to be given. For, when the Feet are cold, the Stomach must necessarily suffer with too much Heat. Hence Sickness and Nausea, distended Hypochondria, and Restlessness, because of the internal Agitation, as also a Delirium, and Pain; add to this, that the Patient is affected with Vellications, and Inclinations to vomit, and if what is discharged by Vomit is bad, Pain succeeds. But when the Heat descends to the Feet, and the Urine is discharged freely, though no Sweat arises, all Things are composed, and then it is proper to give forbile Aliment, which at other Times is pernicious.

In such who have their Belly laxative during the whole Course of a Fever, take care to keep their Feet not less warm than the rest of the Body, by warming them, covering them with Cerates, and rolling them with Swaths. But if they are spontaneously hot, warming Applications are not necessary, unless so far as may preserve them from Refrigeration. In this Case, let the Patient drink cold Water, or Hydromel, in small Quantities.

As for such as have their Bellies laxative in Fevers, and are delirious, many of these pick the Bed-cloths, rub their Noses, return quick (*κατὰ βραχὺ*) Answers to what they are asked, and talk nothing that is rational, but utterly incoherent. These Symptoms I imagine arise from black Bile. In this Case, if the Stools be liquid and colliquative, cooler and thicker Sorbitions, in my Opinion, are proper to be given, and Drinks fit to stop a Looseness, but rather vinous than astringent.

As for those who, in Fevers, from the Beginning, are affected with a Vertigo, and Pulsation in the Head, and make a thin Urine, we are to expect a considerable Exacerbation of the Fever about the Crisis; nor is it a Wonder if they become delirious.

Those who in the Beginning make cloudy or thick Urine, are to be purged, provided nothing contradicts. But such as make thin Urine in the Beginning, are by no Means to be purged, but may, if it shall be thought fit, have a Clyster administered; these latter are to be treated in the following Manner:

Let the Patient be enjoined a strict Rest; let him be anointed, and equally covered with Cloths; let his Drink be diluted Hydromel, and let him sup the Cremor of Ptisan at Evening. Evacuate him with Clysters in the Beginning, but avoid Purging; for if you raise any Commotions about the Stomach, the Concoction of the Urine will be hindered, and the Fever considerably prolonged without Sweat or Crisis. Permit no forbile Aliment to be given at the Approach of the Crisis, when the Perturbation is at the Height, but defer it till the Patient grows easier, and mends. The Crises of all Fevers are to be observed, and forbile Aliments, at that Time, are to be strictly prohibited.

These Sorts of Fevers, generally continue a long Time, and, if attended with a Coldness of the Feet, usually terminate in Abscesses, about the Ears or Neck. If no such Coldness attends, other Alterations are more likely to happen, as an Hemorrhage from the Nose, and sometimes a Diarrhoea. Those who labour under Fevers attended with great Anxiety and Distention of the Hypochondria, with Restlessness, so as not to be able to lie a Moment in the same Place, and Coldness in all their Extremities, require the greatest Care and Watchfulness over them. The Method of treating them is to give them nothing but Oxymel diluted; and to keep them from all forbile Aliments, till the Fever is abated, and the Urine appears concocted. The Patient is to lie in a dark Chamber, on a very soft Bed, to endure for a long Time the same Posture of Decubiture, and to avoid as much as is possible all Jaclation of the Body, for in so doing, he will find himself principally relieved. Moreover, mollify the Hypochondria with Linseed, applied to them, as hot as it can be endured, and boiled in Water and Oil, taking particular Care that it is not grown cold when laid on.

Probably

[†] Thus Galen interprets *ἐκλεκεῖται*. It is observable that Sydenham's Method of Practice is nearly the same as that here specified.

[‡] This Account of a very dangerous Sort of Quinzy, has been adapted by most succeeding Authors on this Subject.

Probable Prognostics may be drawn from the Urine: Those which are turbid, and pale, are better, but the thin and black, are much worse: Their frequent Alteration indicates a long Duration of the Fever, which consequently must be irregular, and undergo many Changes, either for the better or the worse. These anomalous Fevers are to be let alone, till they come to some Consistence, and Regularity, and then they are to be opposed by a proper Regimen, and a convenient Method of Cure, always having a due Regard to whatever Nature produces. Even the Countenances of the Sick are various, and worthy of Notice; it is therefore the Duty of every Physician, to be watchful that no Circumstance escapes his Observation, whether it manifests itself by outward Appearances, or may be discovered by Reasoning; nor must any of those be neglected, which may be expected to happen at equal, or unequal Numbers of Days.

First, then, odd Days are to be suspected, because these produce Alterations in the Distemper, either for the better or for the worse. Observe, therefore, the first Day when the Patient was taken ill, and whence and when the Disease began, which is esteemed the first and principal Thing to be considered. After this, the Sick must be examined, and all Things duly weighed and considered; first, enquire how he finds his Head, whether it be free from Pain, and whether he has no Sense of Gravity in it. Then as to his Sides, and Hypochondria, ask him whether they are free from Pain; the Hypochondria, in particular, whether they are affected with any Uneasiness, or Intumescence, or Obliquity, (*that is, whether they are more swelled on one Side than the other*) or Fulness; whether there be a Pain of the Side, and that Pain be attended with a Cough, Gripes, or Uneasiness of the Belly.

If any of these Symptoms affect the Hypochondria, the most proper Remedy is a laxative Clyster, and let the Patient drink boiled Hydromel pretty hot; examine also whether the Patient be subject to faint when he rises up, and whether he respire without Difficulty. The Stools also are to be regarded; and Notice taken if they are remarkably tinged with a black Colour, or are sincere, as in a State of Health; observe also, whether there be an Exacerbation of the Fever on the third Day.

After considering whatever happens on the three first Days in these Distempers, there are other Things that must come under Examination. Thus, if the fourth Day produce any of the same Symptoms as the third, the Case is attended with Danger.

As to the Signs, black Stools prognosticate Death; but such as are like those of Persons in Health, if they appear every Day the same, are Signs of Recovery.

If a Stool cannot be procured by a Suppository, and nevertheless Respiration is easy, but the Patient faints when he sits up, or lies in Bed, and this happens at the Beginning of the Fever, a Delirium is to be expected, whether the Patient be a Man, or a Woman, that is thus affected.

The Hands also are to be observed; for if they tremble, an Hæmorrhage from the Nose may be expected.

Inspect likewise the Nostrils, and observe whether the Breath passes equally free through both; and if much of it passes through the Nose, Convulsions usually follow; in which Case Death is to be expected; and it is of Importance to a Physician to make sure Prognostics.

If a Fever happens in the Winter, attended with Roughness of the Tongue, and a Delirium, though there is a Remission of the Disease, the Patient is however to be kept extremely low, and to be just supported with Water, and Hydromel, and Cremor of Ptisan (*χρυσός*); for there it is dangerous to rely on the Remission of such Fevers, because Signs of this Nature shew the Patient to be in a hazardous State. When you are well acquainted with these Things, make Predictions, if you please, always, however, with great Circumspection.

In Fevers, if there appears any formidable Symptom on the fifth Day, or there happens a sudden Diarrhæa, or Fainting, or Loss of Voice, or Convulsions, or Hiccups, which render the Patient extremely restless; if a Sweat breaks out about the upper Lip, the Forehead, and the Part of the Neck behind the Head; the Persons who labour under these Symptoms, die in a very short Time, as it were, asthmatic (*πνευματωδής*.)

Those who in Fevers are affected with Tubercles on their Legs (*σκιδια φυμαλιδια*) which continue a long Time without Maturation, the Fever still persevering; and who are moreover seized with a Suffocation in the Throat (*πνιγμός ἐν φάρυγγι*) no Tumor appearing about that Part, and the Tubercles still remaining crude (*καλὰ μὴ σβέδη*) are usually seized with an Hæmorrhage from the Nose, which if it be copious prognosticates a Solution of the Disease; if not, that it will be of long Duration; and the less the Hæmorrhage, the Distemper will be worse, and longer in Proportion. If the Patient is tolerably easy, with respect to other Things, he may expect Pains about

his Feet. But if Pain seizes the Foot, and grows excessive, and is attended with Inflammation, which remains without Resolution, the Pain, by Degrees, will penetrate to the Neck, the Clavicle, the Shoulder, the Breast, and the Hip, (*ἄρθρον*) whence this last must necessarily be affected with Tubercles; if these disappear, and the Hands are contracted, or unsteady, the Patient soon grows convulsed and delirious; Pustules (*φλυδαρία*) also, and red Spots (*ἐρυθματὰ*) appear upon his Eye-brows, the Eye-lids swell, and approach each other, a dry Inflammation succeeds, the Eye swells extremely, and now the Delirium increases exceedingly; the Night, however, produces an Exacerbation of the Delirium, more than the Day. An unequal Number of Days favours the Production of the Symptoms above-mentioned, more than one that is equal; but whenever they appear, they are alike of bad Presage.

If you intend to purge such Patients at the Beginning, it must be done before the fifth Day, provided a Murmuring is perceived in the Intestines, otherwise omit it. But if there is a Murmuring, and the Excrements are bilious, purge gently with Scammony; as to the rest of the Treatment, abstain, as much as the Case will permit, from Liquors, and Sorbitions; till after the fourteenth Day, and the Fever begins to remit; for this Method will promote the Cure.

In a Fever, if there be a Failure of the Voice about the fourteenth Day, it portends no quick Solution nor Deliverance to the Patient, but the long Continuance of the Disorder; if it happens precisely on the fourteenth Day, still the longer will the Disease prevail.

If the Patient in a Fever on the fourth Day, finds some Difficulty in speaking, and has thin bilious Stools, he usually falls into a Delirium.

It is also of Importance to consider the Consequences of many Things which occur.

In acute Diseases, which happen in Summer and Autumn; a sudden Discharge of a few Drops of Blood (from the Nose) indicates a great Resistance (*συστοία*) and Inflammation of the Vessels, and the Appearance of a thin Urine the next Day. And if the Patient be in the Vigour of his Age, inured to Exercise, carous, or of a Constitution inclined to Melancholy, or his Hands shake with Drinking, you may safely prognosticate a Delirium or Convulsions, which, if they happen on even Days, are the more favourable, but, on critical Days, are pernicious; unless the Patient is relieved by a copious Hæmorrhage from the Nose, or the hæmorrhoidal Veins; or by a Suppuration, Translocation of the morbid Matter, critical Tumor, or Pains about the Hypochondria, Testicles or Legs; for a Solution of these, paves the Way to Expectoration, and the Discharge of a thick, smooth, and white Urine.

In a Fever, attended with Hiccups, let the Patient take the Juice of Silphium, and wild Carrot, beat up with Oxymel; and give him Galbanum in Honey, with Cummin, by Way of Laxative; after these, he may be allowed strained Juice of Ptisan. In this Case, the Patient cannot escape, unless he is relieved by critical Sweats, regular Sleep, and the Discharge of a thick and acrid Urine, except the Disease terminates in an Abscess. An Eclegma may be prepared of Pine-nut Kernels; and Myrrh; and let the Sick drink very little Oxymel; but, if he be very thirsty, give him Barley-water.

In a Peripneumony, or Pleurisy, we are to consider whether they are attended with an acute Fever; whether the Pain lies in one or both Sides; whether the Patient labours for Breath; whether there be a Cough, and of what Kind the Spit, whether reddish, livid, thin, frothy, florid, or in any Respect different from what usually happens in such Cases. The Patients are to be treated after the following Method:

If the Pain verges towards the Clavicle, or the Breast, or Arm, open the inner Vein of the Arm, on the Side where the Pain lies, and take away as much Blood as the Habit of Body, the Season of the Year, together with the Age and Complexion of the Person will permit; and the more plentifully, and with the greater Confidence, if the Pain be acute, even to the Fainting of the Patient. After this, let a Clyster be given.

But if the Pain is situated under the Thorax, and is very intense, exhibit a Purge. Whilst it works, give nothing; but when the Medicine has finished its Operation, let the Patient take some Oxymel. Purge on the fourth Day; but the three first Days make Use of Clysters, and then, if these give no Relief, purge gently; after this, let due Care be taken of the Patient, till the Fever disappears, and the seventh Day is arrived. If then the Danger appears to be over, proceed thus: First, exhibit a little Juice of Ptisan, mixed with Honey. Afterwards, if the Spit comes up with Ease, Respiration is easy, and the Pain of the Side is no longer sensible, give a somewhat larger Quantity, made a little thicker, twice in a Day.

If the Disease be more obstinate, the Drink must be less in Quantity, with a little sorbile Food; that is, the Juice of Ptisan prepared thin, and given but once in a Day, and that at

the Time when it is at the best, which may be known by the Urine. But in these Distempers, forbile Food is not to be allowed till a Concoction is manifest in the Urine and Spit. And if the Patient has been purged much, his Diet must be the thinner, and the less in Quantity, for he will not be able to sleep, because of the Inanition of the Vessels, nor digest as he would otherwise, nor have Strength to sustain the Shock of the Crisis. But when Crudities are brought to a Colliquation, and what resists (*Nature*) is expelled, nothing will afterwards interfere with a more plentiful Use of these. Now the Spit is distinguished to be concocted, when it is like Pus, and the Urine, when it deposite a reddish Sediment like (*the Meal of*) Vetches.

In other Pains of the Sides, it is proper enough to apply warm Fomentations and Cerates, and to anoint the Legs and Loins with warm Oil or Fat; but on the Hypochondria lay a Cataplasim of Linseed, that may extend as far as the Breast.

A Peripneumony, in its Vigour, admits of no Relief, without a Discharge by Expectoration, and is dangerous, if accompanied with a Difficulty of Breathing, a Discharge of thin and acrid Urine, with Sweats about the Neck and Head; for these are fatal, as proceeding from a Suffocation, and the Strength and Fury of the prevailing Distemper, unless when there is a plentiful Discharge of thick Urine, or a concocted Matter is expectorated; for if any Thing of this Kind happens, there is a Solution of the Disease.

An Eclegma for the Peripneumony is prepared of Pine-nut Kernels, and Galbanum with Attic Honey. For a Pleurisy, in the Beginning, when the Pain is urgent, boil Southernwood, Pepper, and black Hellebore in Oxymel, and give the Patient. A Decoction of Panax (*ωάριζ*) in Oxymel, strained and drank, is good in Affections of the Liver, and Pains about the Diaphragm. Give what is intended to operate by Stool or Urine in Wine and Honey; but it may sometimes be advisable to give Cathartics, with a plentiful Draught of diluted Hydromel.

When a Dysentery ceases, it is succeeded by an Abscess, or some Sort of Tumor, unless it terminates in a Fever, or in Sweats, whilst the Urine is thick, white, and smooth; or it may end in a Tertian, or in a Varix, or fix upon the Testicle, or Legs, or the Hip.

In a bilious Fever the Accession of the Jaundice, with a Shivering before the seventh Day, gives a Solution to the Disease; but if it comes out of Season, and without a Rigour, it is fatal.

Convulsions about the Loins, and a Stagnation of the Blood on Account of a Redundance of melancholy Humours, whenever they happen, are solved by Phlebotomy. But when the Body is drawn vehemently forwards by convulsive Contractions of the Muscles, and Sweats are raised about the Neck and Face; the Violence of the Pain stimulating, and shrivelling the Psoas Muscles,^b which being considerably thick, sustain the Spine of the Back, in that Part where the largest Nerves take their Rise, and are extended to the Feet, unless the Patient be seized with a Fever, and a Sleep, and then makes a well concocted Urine, and falls into critical Sweats, let him drink generous Cretic Wines, and eat boiled Meal. Anoint him also with emollient Cerates, and bathe his Legs in a Tub of warm Water, and afterwards wrap them up in Cloths as far as the Feet, and in like Manner cover the Arms down to the Fingers. Lay also a warm Skin, spread with Fat and Cerate, over the Loins, large enough to reach from the Neck to the Haunches, and to come over before. Fomentations also with Bladders may be used at Intervals, with Affusions of warm Water, after which the Patient, being well wrapt up in Linnen, is to be laid to rest.

Beware of too much Purging; but if the Belly has been collicive for a considerable Time, use a Suppository; and if this answers the Purpose, it relieves the Patient; if not, let him drink fragrant Wine medicated with the bruised Root of Bryony and wild Carrot in the Morning fasting, before Affusions of Water; and after these, let him immediately eat heartily of boiled Meal warm, drinking afterwards at Pleasure Wine well tempered. If this Method answers the Intention, it is well; if not, Danger may be prognosticated.

All Diseases admit of a Solution, either by the Mouth, or the Belly, or the urinary Glands, or some other Emunctory; but all critical Discharges are accompanied with Sweats.

In Case a Rheum descends from the Head, Hellebore is the proper Remedy; but to such as labour under an Abscess, a Rupture of a Vessel, the ill Effects of Intemperance, or who, from some other powerful Cause, are affected with a Suppuration, Hellebore is by no Means to be given; for it can do no Good, and if the Patient be worse, is sure to bear the Blame. But if the Body be languishing, or there be a Pain in the Head, or a Stuffing of the Ears and Nostrils, or a Spitting, or a Heaviness of the Knees, or the Body smell more than

usual, you may prescribe it, provided that none of the aforementioned Symptoms proceeds from Excess of Drinking, or Venery, from Sorrow, Cares, or Want of Sleep; if any of these are in Fault, the Method of Cure must be suited to the Cause.

Pains in the Sides, Back, Loins, and Hips, and whatever manifestly cause a painful Respiration, are sometimes the Effects of Travelling; though sometimes also the Pains in the Loins and Hips proceed from a Crapula (*Overloading the Stomach*) or stultent Food: To these may be added a Dysury; now all these together with a Stuffing of the Head, and a Hoarseness, are often caused by Fatigue in travelling.

Many Signs worthy of Notice arise from the Method of Diet, according as a Person deviates from that which has been habitual to him. If any one makes a Dinner, who never used to dine, his Belly swells considerably, and a Sleepiness, together with a Sense of Fulness, oppresses him; and if besides he sups as usual, he finds his Belly disordered. Such Persons would do well to sleep immediately after Bathing, and when they rise, to walk gently for a considerable Time; if by these Means Stools are procured, let him make a Supper, and drink a little Wine, but not much diluted. But if there are no Stools, the best Way is to anoint the Body with warm Oil; and in Case of Thirst, to drink a little white, or sweet Wine diluted, and immediately afterwards to betake themselves to Rest, where, if they cannot sleep, let them continue at Rest longer. In other Respects, let such a Diet be directed as is proper for a Crapula.

As to Drinks, those which are watery are slow of Passage, and gather round, and float about the Hypochondria, not readily passing off by Urine. Whoever fills himself with such Liquors cannot be quick at the Dispatch of any Work that requires great Efforts, Strength, or Agility of Body. In such a Case, the best Way in general is to be still, and rest, till such Fluids are concocted together with the Food. On the contrary, the stronger, or more austere Sorts of Drink cause Palpitations in the Body, and Pulsations in the Head. Those who are disordered by such an Excess are relieved by Sleep, and supping some such warm Liquor, as is most agreeable to the Palate.

Fasting is bad for the Head-ach and Crapula. Those who eat but once in a Day grow weak; their Urine is hot, from an unnatural Exinanition of the Vessels; there is a Saltness and Bitterness in their Mouth; they tremble when they are about any Work, the temporal Arteries are distended; nor can they digest their Supper so well as if they had dined. It will be proper for such to drink less than usual, and to eat Maza made pretty liquid, instead of Bread, and among their Greens to use Docks, or Mallows, or Ptisan, hulled Barley, or Beet. At Table, let them after Eating drink a moderate Quantity of Wine well diluted, and after Supper take a gentle Walk, till a Secretion being made, they have Occasion to evacuate by Urine: Let them feed also on boiled Fish.

Foods also evidently manifest their Qualities by their Effects: Thus Garlick generates Flatulencies, and Heat in the Thorax, causes Heaviness of the Head, and Anxiety, and, if there happens to be any habitual Pain, it will not fail to increase it. But it provokes Urine, which is a good Quality; it is best eaten before a premeditated hard Drinking or Debauch.

Cheese breeds Flatulencies, and is astringent; it dries the Food, is a crude and undigestible Sort of Aliment, and very bad for such to eat who have filled themselves with Drink.

Pulse of all Sorts is stultent, whether raw or boiled, or fried, whether macerated or green; and they ought not to be eaten without other Food. Every Kind has its peculiar Faults.

Chich-pease, whether raw, or baked, generate Flatulencies, and cause Pain.

Lentils unhusked are astringent, and cause violent and frequent Contractions of the Heart [*ἀγαν*]. Lupines are the most harmless of this Class.

Silphium, both the Plant and Juice, is very quick in passing through the Body with some, but very slow in others who are not used to it, and breeds what they call *Dry Choler*, especially if it be eaten with Cheese or Beef. For Beef exasperates melancholy Affections, because it is insuperable by the digestive Organs, and not easy to be dissolved by the Action of the Stomach. But these Inconveniencies are best avoided by thoroughly boiling it, and eating it stale.

Goats-flesh, besides that it has all the Faults of Beef, is more subject to breed Crudities, Flatulencies, Eructations, and Choler. That which is most fragrant, firm, and is grateful to the Palate, is the best, and ought to be thoroughly boiled, and eaten cold. On the Contrary, what is disagreeable, rank, and hard, is the worst, especially if fresh killed. It is best also in Summer, and worst in Autumn.

^b The Commentator and Interpreters have conjured up a Difficulty, where there appears to be none. They seem to think the Word *ψωάρις* should be wrote *ψωάριον*, which they derive from *ψωάριον*. *The Extremity of the Os Sacrum*. In my Opinion, Hippocrates expresses very plainly the Psoas Muscles, for which *ψωάριον* seems a very proper Name, because of their Vicinity to the Kidnies, Ureters, and Bladder, the Organs employed about the Secretion, and Expulsion of the (*ψωάριον*) Urine.

^c This is a very judicious Observation. It is certain that the Juices after Fasting contract an Alcalescence, for Want of being diluted with fresh Chyle; and hence the Symptoms mentioned by Hippocrates in this Place.

Swines-flesh is bad when eaten either too raw, or over done, for then it is subject to breed Cholera, and create Uneasiness. Sows-flesh is however the most excellent of all others, and of this the choicest is what is neither extremely fat nor lean, nor of the Age of an old Victim, and it is best when eaten without the Skin, and somewhat cold.

In a dry Cholera [*χολέρα ξηρή*] the Belly is inflated, and a Murmuring in the Intestines is perceived; the Sides and Loins are in Pain, and nothing passes by Stool, but the Patient is entirely costive.

In this Disorder beware of giving an Emetic, but let your Care be to discharge the Belly of its Contents downwards. For this End as speedily as may be, administer a warm Clyster, rendered as emollient as possible, by an Admixture of Fat, and, after well anointing the Patient, conduct him into a plentiful Bath of hot Water, and placing him in the Solium [*σκάφη*] pour the Water on him by Degrees. During this Treatment in the Bath, if he can have the Benefit of a Stool, there is a Solution of the Disease. Sleep also will do him Good, and Drinking of thin old Wine, not mixed with Water. Give him also Oil that he may rest, have a Stool, and so get quit of his Distemper; but keep him from all Sorts of Food. If the Pain does not remit, let him drink Asses-Milk till it purge him. If the Excrements are liquid and bilious, and the Patient is afflicted with Gripes, Vomiting, and Fainting, the best Way is to enjoin a strict Rest, and to exhibit Hydromel, so as not to return it by Vomit.

Of Dropsies there are two Kinds; the first, which comes under the Flesh [*ὑποσφαιδίου*] when it once attacks, is incurable; the other is attended with Flatulencies, and the Patient is very fortunate if he gets a Cure, which must be attempted principally by hard Labour, Fomentations, and Temperance. Let him eat dry and acrid Food, which will not only cause him to make Plenty of Urine, but also strengthen him in a great Measure. If he is afflicted with a Difficulty of Breathing, and it be the Summer Season, and he in the Vigour of his Age, and in his full Strength, it will be proper to take some Blood from the Arm. Afterwards let him eat hot Bread dipt in Black Wine and Oil, and drink as little as possible, but use hard Labour and Exercise, and eat well fed Swines-flesh, boiled in Vinegar, that he might be the better able to support himself under his fatiguing Walks, which ought to be against Places of steep Ascent.

Such as have the lower Belly hot, are subject to sharp and irregular Stools, and to a Colligation; if their Strength be firm, they ought to have a Dose of white Hellebore, in order to make a Revulsion, but if weak, the Juice of Sitanean [*σιταναίος*] Wheat is to be given, made thick and then cooled, or else Gruel of Lentils, or Bread baked in the Embers [*ἰγκυφίας*] or Fish, which must be boiled for one that is feverish, but roasted for others. Black Wine also is to be given to one that has no Fever, otherwise Water in which have been macerated Medlars, or Myrtle-Berries, as Quinces, or Services, or Dates, or the Fruit of the Wild Vine. If the Patient be affected with Gripes, without a Fever, let him drink Cows-milk warm, a small Quantity at first, and increased every Time afterwards; or take Linseed, and the Meal of roasted Wheat, and Egyptian Beans, first stripped of their bitter Husks, grind these, macerate them, and give the Mixture to drink; let him also eat Eggs half roasted, the finest Wheat-flour [*σιμιδάρις*] Millet, and Alica [*χάδδω*] boiled in Milk. These are to be eaten cold, after they are boiled; and other Meats and Drinks of the same Nature with the above-mentioned are to be used.

With Respect to Regimen, it is a Point of the greatest Importance to watch and observe the proper Seasons for giving Aliment in acute and chronical Cases; and for this Purpose to remark the Intensions, and Remissions of Fevers, that you may find, and improve, the Opportunities when Food is by no Means proper, and when it may safely be offered, and to know at what Time the Disease is farthest from its greatest Degree of Exacerbation.

Have Regard also to Persons affected with an Head-ach, whether it proceeds from Exercise, as Running, Travelling, Hunting, or any other unseasonable Labour, or Venereal Commerce. Observe also the State of the Ill-coloured, the Hoarse, those who are affected with Disorders of the Spleen, those whose Blood is deficient, the Asthmatic, those who are afflicted with a dry Cough, or Thirst, or Flatulencies, or Stagnations of the Blood. Such as have their Hypochondria, Sides, or Back distended, or are benumbed or dim-sighted, those who are troubled with Noise in the Ears, or an Incontinence of Urine, or the Jaundice; those whose Stools are crude, who labour under copious Hæmorrhages from the Nose, or hæmorrhoidal Veins, or are molested with Inflations, or suffer vehement and intolerable Pains, from which they can by no Means free themselves. None of these above-mentioned Patients are to be purged; for Purging would be dangerous, and can do no Good; besides, it prevents a Crisis, and deprives Nature of the Means of assisting herself. But if it be proper to bleed in any of these Cases, first render the Belly firm,

and then proceed to take away Blood, to enjoin Abstinence, and to forbid Wine; the Cure is to be prosecuted afterwards by a convenient Regimen of Diet, and moist Fomentations. But if the Patient appears to be costive, relax the Belly with a gentle Clyster; or if you think Purging necessary, you may with Safety effect it upwards with Hellebore, but prescribe Purging downwards in none of these Cases.

But the best Way is to treat such Patients with Diuretics, and Diaphoretics, and to order them Walking and Friction, though but gentle, lest the Habit should become more dense; and if they lie in Bed, let others rub them.

If the Distemper affects the Thorax above the Diaphragm, the most proper Posture for the Patient is to sit upright, and to recline as little as possible, till his Strength is increased; and while he sits, let him be well rubbed with Plenty of warm Oil for a considerable Time together.

But if the Pain lies in the Belly below the Diaphragm, the best Situation is Lying along, without moving the Body at all, except by Friction.

Diseases of the lower Belly which have their proper Solution by Urine and Sweat, if they are moderately moveable, are spontaneously solved when slight; but the more considerable are of pernicious Consequence; for the Patients either die, or fall into some other Distemper before they recover their Health. But Diseases of this Kind generally fix themselves upon some particular Part.

A POTION for a DROPSY.

Take three Cantharides, and pulling off their Heads, Feet, and Wings, bruise the Bodies in a Quarter of a Pint of Water, and give it the Patient to drink. When the Medicine begins to operate, let him use an Embrocation of warm Water. He is to drink it fasting, being first anointed, and let him eat hot Bread and Oil.

To stop an HÆMORRHAGE.

Wet some Wool with the Juice of the Fig, and apply it to the Artery on the Inside of the Nose, or put some Runnet intorted into the Nostrils, or thrust up Calcitis with your Finger, compressing the Cartilages of the Nose on the Outside. Loosen the Belly also with Asses Milk boiled, and let the Head be shaved, and Refrigerants afterwards be applied to it, if the Season be hot.

Sesamoides purgeth upwards, if the Weight of a Dram and half of it bruised be taken in Oxymel. It is also mixed with the Hellebores, so as to be a Third of the Composition, which by that Means is rendered less suffocating.

THE SUTURE for a TRICHOSIS.

Take a Needle which hath an Eye, and thrust the Point through the upper acuminate and tense Part of the Eye-lid, downwards, and repass it from the inner Part upwards, then fastening the extended Thread upon the Place with a Knot, let it rest till it falls off. If this be sufficient, it is well; if not, the same Operation must be repeated.

In like Manner are the Hæmorrhoids be treated, that is, by passing through them a Needle with a very thick Thread made of greasy Wool, and fastening it with a Knot, the Largeness of which will contribute to the Cure; and when they are thus compressed, apply a Suppurative; but use no Embrocation till they fall off; however, let one remain always. When the Patient has recovered Strength, purge him with Hellebore, and let him use Exercise and Sweating. The first of these should be a great deal of Friction in the Morning; but let him avoid Running, Drunkenness, and all acrimonious Food, except Oreganium. Let him vomit once in seven Days, or three Times in a Month, for by these Means he will acquire an excellent Habit of Body. Let his Wine be yellow (deep-coloured) austere, diluted, and little in Quantity.

For Persons affected with INTERNAL SUPPURATIONS.

Cut the Bulb of Squills, and boil them in Water, and when they are very well done, throw away the Liquor, and add a second Water, in which boil them over again, till they appear thoroughly boiled, and are soft to the Touch. This done, bruise and mash them, and mix therewith Cummin, roasted white Sesamums, and new Almonds, reduce these to a proper Consistence with Honey, and give them as a Lambitive, and after this a Draught of sweet Wine. For forbile Food let them take the Measure of a small Acetabulum [$\frac{1}{4}$ of a Pint, *λίσσικον*] of white Poppy [*μύκω*] bruised, and macerate and boil it in Water wherein setanious Meal has been washed, and then sweetening the same with Honey, let him take it warm, and so pass the Day; after which, with due Consideration of what may ensue, give him his Supper.

For a DYSENTERY.

Take a Quarter of a Pint of Beans cleansed, and twelve Sprigs of Maddar bruised, and boil them together, and with something oily make it into an Eclegma, and give it the Patient.

For

A L C

For the EYES.

Take Spodium [*σποδίου*] wash it, and afterwards work it well like a dry Mass of Meal; then levigate and moisten it with the austere Juice of bitter unripe Grapes; let it dry in the Sun, and as there is Occasion moisten it, so as to make it of the Consistence of an Ointment. When it is grown dry, levigate it, then apply it to the Eyes, and sprinkle it in their Corners.

For moist EYES.

Take of Ebony one Dram, of burnt Brass one Dram and half; levigate them on a Stone, and add half a Dram of Saffron; these being all reduced to a fine Powder, pour on it half a Pint of Attic sweet Wine, and after it has been exposed to the Sun, cover it, and when it is digested, use it.

For PAINS of the EYES.

Take of Calcitis one Dram, Grapes when a Third of the Juice is expressed, Myrrh and Saffron bruised, and mixing them with Must, digest them in the Sun, and therewith anoint the affected Parts. It ought to be kept in a Copper Vessel.

To know the STRANGULATION of the UTERUS (*Hysterics*).

Pinch the Patient with two Fingers, and if there is any Sign of Sensation, it is a Strangulation; if none, it is a Convulsion.

For the DROPSY.

Give the Quantity of a round Attic Acetabulum (*ακετάβιον*) of Meconium (*Petty Spurge*) for a Dose. Take of the Scoria of Brass as much as will cover the Breadth of three Probes, give it a Consistence with setanian Meal, and having levigated it, exhibit it in the Form of Pills. They purge Water by Stool, and clear the Belly of Excrements. Drop the Juice of Tithymallus upon dried Figs, seven Drops on a Fig, and set them aside in a new Vessel for the Use of the Patient, to the Purpose aforesaid, to whom they must be given just before his Meals. Bruise also petty Spurge (*μικρά σπυρ*) and put Water to it; then, after straining it, make it up with Meal, wet with Honey, into a Cake, which bake, and give your hydropical Patients to eat, who are to drink after it sweet Wine diluted, or Hydromel likewise diluted. But gather the Meconium that comes away with the Excrements, and lay it aside carefully.

ALCALISATIO. *Alcalisation*. It imports the Impregnating any Thing with an alkaline Salt, as Spirit of Wine.

ALCANCALI. An *Antidote*, so called in Italian. It is of good Use in burning Fevers, simple and double Tertians, and in continued Fevers, the Lipyria, Semitertian, and, in a Word, every feverish Disorder, and is thus prepared:

Take of Citrine, Chebule, and Indian Myrabolans, each Sort seven Drams; of Purslane-seeds and purple Violets, each an Ounce and half; of Beleric and Emblic Myrobalans, each one Dram seven Grains; of Mastich, one Dram one Scruple; of Oxyphœnicum (interpreted by the Commentator *Tamarindi*) three Ounces; of wild Colocynthis, Hermodactyls, each two Drams four Grains; of Cassia Fistula cleansed, four Ounces. Then take of Violets, an Ounce and half, and two Pints of Water, and let them boil to a Third; strain it thro' a Bag, and put the Cassia Fistula and the Tamarinds into the Liquor, work them well with your Hands, and, after straining all the Juice through a Bag, let the Liquor stand. After this take another Portion of such Liquor, and put in it of Sugar one Pound and half, and let them boil to the Thickness of Honey; add to them the Liquor of the Cassia Fistula and the Tamarinds, and let all boil together to the Thickness of Honey. Lastly add to this all the above-mentioned Ingredients well bruised. The Dose is three Drams in warm Water; or you may give two or three Scruples in an Infusion of Rhubarb warm, or in Rose-water, lasting, *Alyroscius*, Sect. 1. Cap. 24.

ALCANNA. A Plant thus distinguished:

Alcanna, Offic. *Ligustrum Indicum* seu *Alcanna Manibondi*, Herm. Mus. Zeyl. 6. 65. *Ligustri species* 2. *Alcanna dista*, Bont. 143. *Ligustrum Orientale*, five *Cyprus Dioscoridis* & *Plinii*, Park. Theat. 1447. Raii Hist. 2. 1603. *Ligustrum Aegyptiacum latifolium* & *angustifolium*, C. B. Pin. 476. *Ligustrum Aegyptium*, *Cyprus Græcorum*, *Elbanne Arabum*, J. B. 1. 541. Chab. 41. *Ligustri species*, Comm. Flor. Mal. 161. *Baccifera Indica bacis oblongis in umbellæ formam dispositis*, Raii Hist. 2. 1634. EASTERN PRIVET. *Dale*.

This is the *Kenna* of the Turks and Moors. The Leaf, when reduced to a yellow Powder, is used for a Cosmetic by the Natives; namely, by the Men to dye their Beards red, and by Women to dye their Nails of the same Colour; in order to which they make it into a Sort of Paste, with Juice of Lemons. Its medicinal Virtues are Emmenagogue and Hysterie, and accordingly it is used in the Eastern Countries, to cause Abortion, and to bring away dead Children. *Grossroy*.

The Account Dioscorides gives of this Plant, which he calls *Cyprus*, is as follows:

The *Cyprus* is a Tree, the Leaves on whose Branches are like those of the Olive, but broader, softer, and greener. The

A L C

Flowers are white, mossy, and scented; the Seed black like that of the Elder-tree. The fairest grows about Ascalon and Canopus.

The Leaves have an astringent Quality, by which they heal Ulcers in the Mouth, being chewed therein, and are good for Carbuncles, and other fiery Inflammations, if applied in a Cataplasma. The Decoction of them is used to wash Burns. The Leaves bruised, and moistened with the Juice of Dyers Weed (*γέρβιον*) turn the Hair of a yellow Colour. The Flowers, bruised in Vinegar, and applied to the Forehead, ease the Pains of the Head.

The *Cyprine Ointment*, which is prepared of the Flowers, has the Virtue of warming and mollifying the Nerves, and is sweet-scented, being a Composition of Simples of a hot and fiery Quality. *Dioscorides*, Lib. 1. C. 124.

The *Cyprus* is a Tree in Egypt, that has Leaves like those of the Ziziphus, Seed like Coriander, and a white scented Flower. They boil this last in Oil, and express what they call the *Cyprus* (an Oil) which is sold in Quantities of five Pound (*Pretium ei in Libras quinque*). The best, in Point of Fragrance, comes from Canopica on the Banks of the Nile, the next in Goodness from Ascalon in Judea, and the third from the Isle of Cyprus. Some say it is the same Tree which they call in Italy *Ligustrum*. *Pliny*, L. 12. C. 24.

Pliny has the same Virtues of Dioscorides, and adds that the Leaves are applied to the Stomach when disordered, and their Juice to the Uterus in Hysterics; that the fresh Leaves chewed heal running Ulcers in the Head as well as in the Mouth, a Collection of Humours, and Condylomata. The Flowers burnt in a crude earthen Pot, cure Nomæ, and putrid Ulcers, either used alone, or with Honey. The Smell of the Flowers provokes Sleep. *Pliny*, L. 23. C. 4.

ALCANNA also signifies the same as *Ichthyocolla*, *Jsinglasi*, *Johnson*.

ALCAOL. *Rulandus*, and from him *Johnson*, interpret this *Lac Acetosum* five *Mercurius*. By *Lac Acetosum*, I suppose they mean the *Lac Philosophorum*, or Solvent for the Preparation of the Philosophers Stone.

ALCAR. *Ἀλκαρ*. Galen explains this by βοήθημα, *Help*, *Assistance*. It signifies also a Remedy. *Foesius*.

ALCARA. *A Cucurbit*. *Rulandus*.

ALCE. *The Elk*.

This is a wild Beast, furnished with Horns, as big as a Horse, it is bearded and covered with long Hairs from the Top of the Head to the Shoulders; its Colour is commonly grey, or whitish; the Head is very large, its Eyes sparkling, its Lips are large and thick, its Teeth are moderate, its Ears are long and large, its Horns are branched like those of a Fallow Deer, weighing at least twelve Pounds the two, which Horns they lose yearly; the Female has none at all, its Belly is as large as that of a Cow, its Tail is very little, its Legs are long and slender, its Feet are black, its Hoofs divided like those of an Ox; the Flesh is very hard, the Back is covered with Hairs like the fine grey Hairs of a Mouse; this Animal is found in Poland, in Prussia, in Sweden, in Norway, and Canada; it is timorous and casts itself into the Water when they hunt it, but it is very strong, his Lust is like that of the Stag. It is subject to the Epilepsy, and they relate that, when it is in a Fit, it cures itself by rubbing its Ears with the Hoof of its hind left Leg: It is for this Reason they esteem the hind left Leg in Medicine much more than the right. Its Hoof is in Use, called *Ungula Alcis*, it should be chosen weighty, compact, smooth, bright, and black; it contains a great deal of volatile Salt and Oil.

They use the Hoof of an Elk as a Cure for the Epilepsy taken internally; they hang a little Piece at the Neck, and they make of it Rings to wear on the Finger for the same Distemper, but these Amulets produce no Effect.

The other Feet of Elks are as good as the left hind Foot, for the Effect proceeds only from the volatile Salt of which there is as much in one as the other. *Lemery de Drogues*.

Some People eat the Flesh as Venison. The Nerves are used against the Cramp, by binding the affected Part with them. *Pomet*.

ALCEA. A Plant of the Mallow Kind, thus called by Authors:

Ἀλκία, Dioscoridis. *Alcea*, Offic. *Alcea vulgaris*, J. B. 2. 953. Raii Hist. 1. 604. Synop. 3. 252. Dill. Cat. Gissl. 144. *Alcea vulgaris major*, C. B. Pin. 316. *Alcea vulgaris* five *Malva verbenacea*, Park. Theat. 301. *Alcea vulgaris*, Mer. Pin. 3. Merc. Bot. 17. Phyt. Brit. 3. *Alcea vulgaris major flore ex rubro roseo*, Tourn. Inst. 97. Boerh. Ind. A. 270. Hist. Oxon. 2. 527. *Malva verbenacea*, Ger. 785. Emac. 931. VAIN-MALLOW. *Dale*.

Alcea is a Kind of Wild Mallows, with Leaves deeply cut like those of Vervain (*ισαῖς βοτάνης*) and three or four Stalks covered with a Rind much like Hemp. It bears a small Flower like a Rose. The Roots are white, broad, five or six in Number, and near a Cubit in Length. *Dioscorides*, Lib. 3. C. 164.

This is a Species of Mallow, and differs from the Common, in having its Stalks more hairy, and growing more erect; the lower

lower Leaves are smaller and roundish, cut in about the Edges, and growing on long Foot-stalks; the higher they grow, the Foot-stalks are the shorter. The upper Leaves are cut into five deep Laciniae or Segments, the Flowers are larger, paler, and not striated like those of the common Mallow. The Cheese-like Seed-vessel is larger and blacker; the Root is hard and woody, spreading in the Ground.

It grows in the Hedges, and flowers in May and June, and through the greatest Part of Summer.

The Roots drank in Wine or Water cure the Dysentery and Ruptures. *Diosc. L. 3. C. 164.*

Alcea is a Species of Wild Mallows; drank in Wine, especially the Root, it cures the Dysentery, and Corrosions of the Intestines. *Paulus Aegineta, L. 7. C. 3.*

Alcea is a good Digestive, is emollient, and stops Bleeding. It is used in Clysters, and Fomentations, and is taken at the Mouth also to correct the Acrimony of Urine. *Lemery de Drogues.*

It is of the Number of Emollients, and is an Ingredient in Plaisters. It is in great Vogue among Empirics for Dimness of Sight, and a Decoction of it cures the Gripes. It is a very proper Remedy for all Pains attended with Heat. *Dale.*

Miller enumerates the eight following Species:

1. *Alcea vulgaris major, flore ex rubro-roseo*, C. B. P. 316. Greater Vervain-mallow, with a Rose-coloured Flower.
2. *Alcea vulgaris major, flore candidiore*, C. B. P. 316. Greater Vervain-mallow, with a white Flower.
3. *Alcea folio rotundo laciniato*, C. B. P. 316. Vervain-mallow, with a round cut Leaf.
4. *Alcea tenuifolia crispa*, J. B. 11. 1067. Narrow-curved leaved Vervain-mallow.
5. *Alcea Cannabina*, C. B. P. 316. Hemp-leaved Mallow.
6. *Alcea Afra frutescens, grossularia folio flore parvo rubro*, Boerh. Ind. Alt. African shrubby Vervain-mallow, with Gooseberry Leaves, and small red Flowers.
7. *Alcea Africana arborefcens malva folio hirsuto, flore parvo purpureo*, Till. African Tree-like Vervain-mallow, with hairy Mallow-leaves and small purple Flowers.
8. *Alcea Afra frutescens, grossularia folio ampliore, unguibus florum atro-rubentibus*, Aët. Phil. African shrubby Vervain-mallow, with larger Gooseberry Leaves, and dark-red Spots at the Bottom of the Flowers.

ALCEA INDICA.

It has a large pentapetalous Flower, and a pretty big seminal Vessel, divided into five Cells containing Kidney-like Seeds.

Bamia Moschata, Offic. *Alcea sive Bamia Moschata Egyptiaca*, Breyn. Prod. 1. 2. *Alcea Egyptia Moschata*, Park. Theat. 301. *Alcea Egyptiaca villosa*, C. B. Pin. 317. Raii Hist. 2. 1066. *Bamia*, *Belmuscus* Honorio Bello, Chab. 302. *Althea Egyptiaca Moschata Abel Mosch dicta*, Hist. Oxon. 2. 533. *Abel Mosch vulgò*, Herm. Hort. Lugd. Bat. 25. *Mosch, id est, Bamia Moschata*, Alp. Exot. 197. *Ketmia Egyptiaca semine Moschato*, Tourn. Inst. 100. Boerh. Ind. A. 272. MOSCH-SEED.

It grows in Egypt. The Seeds are used, which are of a smutty Colour, Kidney like, and of a very fragrant Smell, like Musk. The Egyptians dry them slightly, and mix the Powder in their Coffee, to make it more effectual for the strengthening of their Head, Stomach, and Heart. We use it in Fumigations. *Dale.*

ALCEBRIS VIVUM. The same as *Sulphur Vivum*. Ruilandus, who also calls it ALNERIC, ANERIT; and ANERIC.

ALGEDO. The King's Fisher. A Bird thus distinguished by Authors:

Ispida, Offic. Aldr. Ornith. 3. 518. Gefn. de Avib. 513. Jonf. de Avib. 107. *Ispida, an veterum Halcyon?* Will. Ornith. 101. Raii Ornith. 146. Ejusd. Synop. A. 48. *Ispida, Aleyon fluviatilis, vulgò Piscator Regis*, Charlt. Exer. 111. *Alcedo*, Schrod. 5. 314. *Halcedo muta*, Bellon. des Oyse, 219. *Dale.*

It is a little Sea-bird, somewhat like a Quail, of different Colours, as blue, purple, red, or yellow; its Beak is long and small, of a yellowish Colour; they build their Nests among Reeds, or upon Rocks on the Shore; it lives upon small Fish; it lays its Eggs in Winter when the Weather is serene. They pretend that it is a happy Omen of calm and fair Weather.

It contains a great deal of volatile Salt.

This Bird dried, and hanged to Childrens Necks, preserves them from the Epilepsy, but a more certain Effect is to be produced by giving a Scruple every Day in Powder at the Mouths, in Retony-water.

The white dried Nests of Birds which the People of Siam and other Travellers bring into France, are those of the Indian King's Fishers, and principally of those which breed on the Coasts of the Kingdom of Cambia. Their Nests are in the Shape of round Bowls, their Substance is of a white Froth which they discharge from their Bills when they are going to breed, and which hardens by the Heat of the Sun, the Taste of these Nests

is insipid, and glutinous. The Chinese look upon them as Dainties, and eat them boiled with Ginger.

They are esteemed Restoratives, and are said to strengthen the Stomach. *Lemery de Drogues.*

Pomet adds, that the Chinese are such Lovers of these Birds-nests, that it is almost incredible what Quantities are sent to Pequim, the Capital of China. They are usually valued at fifty Tabers the Hundred, which is about six hundred Livres, or fifty Pounds of our Money. These Nests were formerly little known, and it was believed that they were made of the Froth of the Sea; but since the People of Siam have introduced them they are become very common.

ALCHACHIL. A Name for *Rosemary*. *Dale.*

ALCHARITH, or ALECHARITH. *Quicksilver*. *Johnson. Castellus.*

ALCHEMIA, or ALCYMYA. *Alchemy*. It imports that Branch of Chymistry, which relates particularly to the Transmutation of Metals. The Arabic Particle AL added to it by Way of Eminence, distinguishes it from vulgar Chymistry.

It was common for the Orientals to denote the Excellence of any Thing by representing it as more particularly belonging to the Supreme Being. Thus the *Mountains of God*, are only Mountains eminently high; and the *Rivers of God*, are Rivers of great Depth and Breadth. In like Manner I should suspect *Alchemy* to signify the Chymistry of God, as *Alla* is the Arabian Name for the Supreme Being. See CHYMIA. See AL.

ALCHIMELECH. The Egyptian *Melilot*.

Melilotus Egyptia Alchimelech vocata, J. B. *Melilotus Egyptiaca*, Park. *Melilotus Corniculis reflexis minor*, C. B.

The Plant spreads itself on the Ground, being small, and gently creeping, seldom or never raising itself in Height. Its Leaves are like those of Trefoil, only lesser. The Flowers are small, copious, long, growing in Clusters, of the Colour of Saffron, sweet-scented, from whence are produced small oblique Pods, containing a minute round Seed, of a blackish Colour, inclining to red, not quite void of Smell, and of a bitterish astringent Taste. *Raii Hist. Plant.*

ALCHIEN. In the *Theatrum Chymicum*, Vol. 5. we meet with this Word. It would be much more easy to transcribe the Explanation of it from the Book quoted above, as Castellus has done, than to understand what the Author means. If it has any real Meaning, it should seem to signify that Power in Nature by which all Corruption and Generation are effected.

ALCHIMILLA. A Plant thus called:

Alchimilla, Offic. Ger. 802. Emac. 949. Raii Hist. 1. 208. Synop. 66. *Alchimilla vulgaris*, C. B. 319. Tourn. Inst. 508. Boerh. Ind. A. 2. 92. Dill. Cat. 67. *Alchimilla major vulgaris*, Park. 538. *Alchimilla perennis viridis major, foliis ex luteo virentibus*, Hist. Oxon. 2. 195. *Pis leonis sive Alchimilla*, J. B. 2. 3981. Chab. 172. LADY'S MANTLE. *Dale.*

The Leaves of Ladies Mantle, upon their first Springing up from the Root, are plaited or folded together, of a whitish green Colour, covered with a short fine Down, having eight Corners, and when spread open, in Shape something like Mallows, but much neater and more elegantly serrated about the Edges; the Stalks are weak, seldom standing upright, somewhat hairy, and clothed with the like Leaves, but smaller, and having shorter Foot-stalks, bearing at the Tops Clusters of greenish Flowers, of eight Leaves a Piece, with yellow Stamina in the Middle, each Flower producing two small Seeds. The Root is pretty thick, of a black Colour on the Outside, with many Fibres. It grows in Meadow and Pasture Grounds, but rarely about London. It flowers in May.

It contains a great deal of Phlegm, and Oil, and a moderate Quantity of Salt. *Lemery de Drogues.*

The Leaves are chiefly used. This Plant is reckoned among the principal vulnerary ones, being drying and binding, incrassating and consolidating, and of great Force to stop inward Bleeding, the immoderate Flux of the Menfes, and the Fluor Albus, and is frequently prescribed in Wound-drinks, and Traumatic Apozems, and for Ruptures of all Kinds. The Leaves, outwardly applied, are commended for lank, flagging Breasts, to bring them to a greater Firmness, and a smaller Compass. *Miller, Bot. Off. Boerhaave.*

Lemery adds, that it is deterfive and astringent, it serves in a Decoction for Soreness of the Lungs. *Lemery de Drogues.*

The Species of this Herb are:

1. *Alchimilla vulgaris*. C. B. Common Ladies Mantle.
2. *Alchimilla Alpina, pubescens, minor*. H. R. Par. The lesser woolly Ladies Mantle.
3. *Alchimilla Alpina, quinquifolia folio subius argenteo*. Tourn. The Alpine five-leaved Ladies Mantle, with the under Part of the Leaves white.
4. *Alchimilla minor*. Mor. Hort. Reg. Bles. The lesser Ladies Mantle.
5. *Alchimilla Alpina pentaphyllea minima, lobis sinbratis*, Bont. Mus. Par. 2. 18. Least five-leaved Ladies Mantle of the Alps, with fringed Leaves.
6. *Alchimilla montana minima*, Col. Par. 1. 146. Least Mountain Ladies Mantle, commonly called *Parsley Breakstone*.
7. *Al-*

7. *Alchimilla supina, gramineo folio, minore flore*, Tourn. Low Grass-leaved Ladies Mantle, with a smaller Flower.

8. *Alchimilla erecta, gramineo folio, minore flore*, Tourn. Upright Grass-leaved Ladies Mantle, with a smaller Flower.

9. *Alchimilla gramineo folio, majore flore*, Tourn. Grass-leaved Ladies Mantle with a larger Flower.

10. *Alchimilla linariæ folio, calyce florum albo*, Tourn. Ladies Mantle with a Toad-flax Leaf, and a white Flower-cup.

11. *Alchimilla linariæ folio, calyce florum sublueto*, Tourn. Ladies Mantle with a Toad-flaxed Leaf, and a yellowish Flower-cup.

12. *Alchimilla orientalis, linariæ folio brevissimo, calyce florum albo*, Tourn. Cor. Eastern Ladies Mantle, with a very short Toad-flaxed Leaf, and a white Flower-cup.

13. *Alchimilla Græca, kali folio, calyce florum albido*, Tourn. Cor. Greek Ladies Mantle, with a Glass-wort Leaf, and a whitish Flower-cup. *Miller's Dict. and Suppl.*

ALCHITRAM, or ALCHIERAM. It signifies Oil of Juniper; or Tar; or prepared Arsenic. *Rulandus.*

ALCHITRAN. This also is Oil of Juniper, according to *Rulandus*, who gives it another Signification, [*Fæx Destillationis*], I suppose he means the Fæces left after the Distillation of some Bodies. In this Sense, it seems to differ from *Caput Mortuum*, as this is dry, whereas *Alchitran* is moist, or fluid, in some Degree. *Castellus*, from *Libavius*, gives it another Signification, and says it signifies a Sort of Salt; he derives the Word from *χίτρα*, a Pot, by which it should be Pot-ash.

The same Author says, *Alchytran* is the Name of a Medicine for the Teeth, taken Notice of by *Meluzæ*.

ALCHITURA. Tar. *Johnson.*

ALCHOLLEA. A Sort of Food, common amongst the Western Moors: It is made of Beef, Mutton, or Camel's Flech, but chiefly Beef, which they cut all in long Slices, salt it well, and let it lie twenty-four Hours in the Pickle. Then they remove it out of those Tubs, or Jars, into others, with Water, and when it has lain a Night, they take it out, and put it on Ropes in the Sun and Air to dry; when it is thoroughly dried and hard, they cut it into Pieces of two or three Inches long, and throw it into a Pan, or Cauldron, which is ready with boiling Oil and Suet, sufficient to hold it, where it boils till it be very clear and red, if one cuts it; which taken out, they set it to drain: When all is thus done, it stands till cool, and Jars are prepared to put it up in, pouring the Liquor they fried it in upon it; as soon as it is thoroughly cold, they stop it up close. It will keep two Years; it will be hard, and the hardest they look upon to be best done. This they dish up cold; sometimes fried with Eggs and Garlick; sometimes stewed, and Lemons squeezed on it. It is very good any Way, either hot or cold. *Philos. Transact.*

ALCHIMIA. See ALCHEMIA.

ALCIBIADIUM. It is a Name for the ECHIUM, which see. *Blancard.*

ALCIMAD. Antimony. *Rulandus.*

ALCIOT. The same as ACHOTL, which see.

ALCOB. Sal Ammoniac. *Rulandus.*

ALCOCALUM. The Cinara, Artichoke. *Blancard.*

ALCOEL. *Rulandus* explains this by *Lac Acetosum*.

ALCOFOL. Antimony. *Castellus* from *Rulandus*, *Johnson*, and *Dornus*.

ALCOHOL, or rather *Al-Ka-bol*, as it ought to be wrote, is an Arabian Word, which signifies a fine impalpable Powder which the Women of the East make use of as a Kind of Fucus.

Dr. Shaw, in his Travels, speaking of the Women of Barbary, says, that none of these Ladies take themselves to be completely dressed, till they have tinged the Hair, and Edges of their Eye-lids, with [*Al-Ka-bol*] the Powder of Lead-Ore. Now as this Operation is performed by dipping first into the Powder a small wooden Bodkin of the Thickness of a Quill, and then drawing it afterwards, through the Eye-lids, over the Ball of the Eye, we shall have a lively Image of what the Prophet (*Jer. 4. 30.*) may be supposed to mean by *renting the Eyes with* (פוך Lead-Ore) *painting*. The sooty Colour, which is in this Manner communicated to the Eyes, is thought to add a wonderful Gracelulness to Persons of all Complexions. The Practice of it, no Doubt, is of great Antiquity: For beside the Instance already taken Notice of, we find, that when Jezebel is said (*2 Kings 9. 30.*) to have painted her Face, the original Words are עיניה בפור עשש she adjusted (or set off) her Eyes with the Powder of Lead-Ore. The like Ornament was made Use of, not only by other Eastern Nations, but by the Greeks and Romans also, as appears from ancient Authors. Among other Things relating to the Egyptian Women, I have likewise seen taken out of the Catacombs at Sakara a Joint of a common Reed, which contained one of the Bodkins, and an Ounce, or more, of the Powder that I have described; both of them agreeable to the Fashion and Custom of this Time.

This ingenious Gentleman informs us, that this Word is rendered by *Golius* and others, *Stibium*, Antimonii Species; and sometimes *Collyrium*. The Hebrew כחל *Cabhol*, hah the same Interpretation; and the Verb עניק *Ezek*.

23. 40. is rendered, *thou paintedst thy Eyes*. פוך (from whence probably the Latin *Fucus*) is taken in the like Signification, being rendered *Antimonium*, *Stibium*, quo ad tingenda nigrore cilia, seu ad venustandos oculos, peculiariter utebantur, color subniger ex pulveribus Stibii confectus. *Schindl. Lex. St. Jerom* likewise, upon these Words, בפוך עניק *Is. 54. 11.* which we render (*I will lay*) *thy Stones with fair Colours*, takes Notice, quod omnes præter LXX. similiter transtulerunt, viz. (*Sternam*) in *Stibio lapides tuos*, in similitudinem comptæ mulieris, quæ oculos pingit stibio, ut pulchritudinem significet civitatis. פוך therefore, and כחל denoting the same mineral Substance, or *Collyrium*, it may be presumed, that what is called to this Day by the latter of these Names (which is a rich Lead-Ore, pounded into an impalpable Powder) was the Mineral which they always made Use of.

I cannot determine whether the learned Author is right or not, with Respect to the Powder called *Alcohol*, which he tells us is Black-Lead. Other Authors, however, inform us, that the Powder made Use of by the Women, to set off the Eyes, was prepared from Antimony.

But we may be pretty certain, that from this exceeding fine Powder, the Word *Alcohol* has been borrowed, and applied to any other Substance reduced to the utmost Degree of Purity, and from which all impure and heterogeneous Particles have been separated.

Hence Spirit of Wine, brought by Art to the highest Degree of Strength and Perfection, is also called *Alcohol*.

As *Alcohol* therefore is the most compleat, and perfect Offspring of vegetable Fermentation, I shall in this Place give the intire Process by which it is produced from *Boerhaave*.

There is scarcely any Thing of greater Antiquity in Natural History, more common in civil Life, or more frequent in Chymistry, than Fermentation; so that we may fairly say with the famous *Bellini*, all Things are full of Ferments, but especially among the Chymists. Nay, if you will believe *Van Helmont*, the Virtue of Ferments alone is the sole Cause of all real Transmutations. But such round and general Assertions confound the Ideas of Things; for if every Mutation be owing to Fermentation, then *Fermentation* will be as general a Word as *Mutation*, by which Means, the true Names of Things are lost. This Confusion has been complained of by Men of the best Sense, who have long desired a particular Dissertation on this Subject, which I shall now endeavour to give.

I. By the Word *Fermentation*, I mean that intestine Motion excited in Vegetables, by which they are changed in such a Manner, that the first Thing which arises from them in Distillation is an acrid Liquor, miscible with Water, of a warm aromatic Taste, inflammable like Oil, thin, and volatile; or else, acrid, acid, extinguishing Fire and Flame, thin, and less volatile.

By this Definition, the Word *Fermentation* is so limited, as to comprehend all that occurs in a true Fermentation, exclusively of every Thing to which it cannot be properly, though it is too often applied.

In every Fermentation, as long as it continues, there is an intestine Motion in the whole Mass, and every Part of it: I call it *intestine*, because it is excited chiefly by internal Principles, which are inherent in the Vegetable. Some Degree of Heat, I confess, is here necessary; but this would not excite a true Fermentation in the Matter, if it were not previously of itself disposed to ferment. For if you take Water, Spirits, Oil, or Salts, and give them the same Degree of Heat, yet you will never bring them to a Fermentation. I say farther, that this intestine Motion can only be excited in Vegetables, for hitherto we have met with no Instance of a Fermentation in Animals, except when they had received into their Bodies vegetable Matter, which they had not yet assimilated and transformed into their own Nature. As for Fossils, I do not remember that ever I observed in them any Motions tending to Fermentation, though Authors of very great Repute have made no Scruple to assert it. It is the Office of Reason rightly to distinguish between Things, and therefore I was obliged to take my Definition from the Effect, because every true and perfect Fermentation terminates in a Spirit, or an Acid. That we may put an End at last to this Confusion, I would ask the judicious Chymists, whether this Action of Vegetables, which I have thus described, is to be called Fermentation? Certainly, none disputes it. I insist then to know, whether, for Distinction sake, and to obey the Laws of Order, we ought not to call all those Actions, which do not produce the Effects assigned, by some other Names? I think Reason teaches us so to do. I shall then make a wide Distinction between Fermentation and Putrefaction, because this latter, though it be also an intestine Motion in Vegetables, yet for its ultimate Effect generates putrid Oils, and fetid, alkaline, volatile Salts. Putrefaction of the Humours of Animals is also a proper intestine Motion, but then it never produces an Acid, or an inflammable Spirit, but phosphorical Matter only, and consequently is quite different from every Kind of Fermentation; for I cannot allow any Thing to come under this Name, which does not generate either an inflammable Spirit, or an Acid, for Fear of Confusion.

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In a Word, none of the various Kinds of Effervescences ought, under any Pretence, to pass for Fermentation, though they may come under the Title of intestine Motions, and may be often observed even in pure, vegetable Substances, as we see in very strong Vinegar, and a fixed alkaline Salt.

II. Every fermented vegetable Liquor, which in Distillation first yields a Spirit that is inflammable, and may be mixed with Water, I shall distinguish by the Name of *Wine*, from whatever vegetable Matter it is produced. The Word will bear this Signification, for Tacitus, with great Propriety of Speech in the Latin Tongue, says, that the Germans made Wine of corrupted Corn [Malt]. All such fermented Liquors therefore, from whatever Vegetables they are prepared, I shall call *Wine*, without any Distinction. And again, every vegetable Liquor, fermented in such a Manner as in the first Distillation to yield an acid Liquor extinguishing Fire, I shall call *Vinegar*; whencesoever derived. Hence the whole Effect of a perfect Fermentation, will be the Production either of Wine or Vinegar.

III. I call a fermentable Body such a one, as by the Action described, N^o 1. may be so changed, as to be capable of producing the Wine or Vinegar, described N^o 2. But as this was never observed but in the vegetable Kingdom, I am obliged to allow nothing but Vegetables to be fermentable, though it will hereafter appear that they are not all so.

IV. I call by the Name of *Ferment*, that Body, which being intimately mixed with the fermentable Vegetable, N^o 3. excites, increases, and promotes the Fermentation described, N^o 1. Hence it appears at first Sight, that all such Ferments belong to the Class of Vegetables.

V. The fermentable Vegetables, N^o 3. are in great Variety. These therefore are to be distributed into as many Classes, as they require different Methods of Fermentation; nor can we here, with any Propriety, admit of more or less. Thus, as we must treat Rye in one Manner to produce Wine from it, and the fresh expressed Juice of Grapes in another; so it is absolutely necessary to distribute these two Vegetables into different Classes: On the contrary, as Wheat, Barley, and Oats, require the very same Management as Rye, for this Purpose; hence, in this Respect, there must be no Distinction made betwixt these, but they must all be referred to the same Class. Mean Time, however, it is necessary to observe, that all Vegetables are not disposed to ferment; for such as abound with a native, alkaline Salt, or are easily changed into it, are unfit for Fermentation, but incline to Putrefaction. Of this I was convinced, when but a Novice in these Matters, by Experiments on Onions and Turneps, having in vain tried to extract such a Spirit as is produced by Fermentation as a Medicine for the Stone, for I obtained an alkaline, foetid, volatile Salt, with a Spirit of the same Kind, instead of a true fermented Spirit. Hence, though all Fermentables will undergo Putrefaction, yet all Putrescibles will not ferment. In Vegetables therefore, in this respect, there is a very great Difference.

VI. These Things being duly considered, we refer to the first Class of Fermentables all those Seeds of Vegetables, which when ripe and dry, are reducible by Trituration to a fine Powder; called Meal, and not to an oily Paste. Hither also I refer those Seeds, which though they abound with a pinguious Oil, yet may be so changed by Art, as to be converted into a Meal of a less oleous Quality. These farinaceous Fermentables require a threefold Subdivision.

1. The first comprehends ripe Seeds of culmiferous, graminifolious, spicated Plants, called Corn, as Oats, Indian Wheat, Grass, Barley, Lacrymæ Jobi, Millet, Rice, Canary-Grass, Wheat of all Sorts, and Rye. To these, as being much of the same Nature, may be added Buck-Wheat, and Flax, and on Account of their near Affinity, the Seeds of all the Cucumber Kind, as Citruls, Cucumbers, Gourds, the Counter-Poison, Musk-Melons, the male Balsam Apple, Pumpions, and the like. Under this Head too we may rank the Seeds of Lettuce, or any other Plant of the same Nature.

2. The Seeds of almost all the leguminous, podded Plants, with the papilionaceous, or any other Flower; as Judas's Tree, Broom, Spanish Broom, Furz, Crotonaria, Dwarf-Broom, Crimson Grass Vetch, Shrub Trefoil, Stinking-Bean-Trefoil, Kidney-Beans, Melilot, Trefoil, Fenugreek, Rest-Harrow, Medick-Fodder, Medicago, the Nettle-Tree, Bastard Acacia, Bastard Sena, Coronilla, Barba Jovis, Pease, Everlasting Pease, Clymenum, Tares, Lentils, yellow Vetchlings, Beans, Goats-Rue, Bitter-Vetch, Liquorice, Saint-Poin, Chiches, Ladies-Fingers, Lupines, Emereus, (Scorpion Sena) Birds-Foot, French Honey-Suckle, Hatched Vetch, Horse-shoe Vetch, Scorpionwort, Astragalus, Acacia, Cassia, Sena.

3. Nuts not too oily, as all Kinds of Almonds, Filherds, Chestnuts, Horse-Chestnuts, Walnuts, Cocoa-Nuts, and Pistach Nuts; which when they abound with too great a Quantity of Oil, must by some Method or other be drained of it, which is best done by letting them begin to shoot, and then scorching them.

VII. The second Class of Fermentables comprehends all the pulposus Fruits, as they are called, whose ripe Juice is of an acid Sweet: Of this Kind are all Cherries, both Sorts of Gooseberries, Mulberries, Raspberries, Elder-berries, and Grapes of all Kinds, all acidish Apples, all Pears, Oranges, Seville and China, Citrons, Lemons, Apricots, Peaches, Plums, Medlars, and the like, if they do not incline to a foetid alkaline Putrefaction.

VIII. In the third Class are contained particularly all succulent Herbs, and all their Parts, as Flowers, Leaves, Roots, and Stalks, if they are disposed to grow acid, rather than putrid.

IX. The fourth Class contains the fresh, native Juices expressed from Vegetables, and especially from their Fruits, No. 7, 8. Hither also we must refer that thin Liquor which distills from Incisions made in some Trees, as the Birch, Walnut, and Vine, particularly in the Spring-Season: For all these Juices usually undergo a spontaneous Fermentation, and then have their Nature quite altered by exchanging their acidish, stimulating, refrigerating Quality for one which is heating, inebriating, and vinous. Helmont the elder, recommends the Water that distills from the wounded Birch in March, when new; or kept from corrupting, as a Secret for the Stone: And Mr. Boyle, from his own, and other People's Experience, assures us of its Efficacy in that Distemper; but he found, that though the fresh was of Service, yet it had quite altered its Nature by Fermentation.

X. To the fifth Class belong such vegetable Juices, as being generated, and inspissated by Nature, are changed into a saponaceous Sort of Substance in the Form of a saline and pinguious Coagulum: Of this Sort are Manna, Honey, Cassia, Sugar, and all other Things of this Kind, which are not balsamic, gummy, resinous, or oily.

XI. I am in Doubt, whether we should refer the Waters of Rivers to a sixth Class: These seem, indeed, to be common Lixiviums, impregnated with all Kinds of Vegetables which fall into them, are resolved in them, and at last intimately united with them. River-waters derived into the Ditches of populous Cities are mixed with the fresh, fermentative Liquors of Vegetables cast into them, and therefore, if they are put up in Casks, which were once used for Malt-Liquor, Wine, or Vinegar, may conceal a great Quantity of Spirits for a long Time. And hence, when they come under the Equator, or within the torrid Zones, by being exposed to so great a Degree of Heat, they may be exalted into a Kind of Fermentation. To the foregoing six Classes, I think, may be reduced all Bodies susceptible of Fermentation, if they are managed after various Manners suited to their different Natures.

XII. In the Bodies contained in the first five Classes, there are required some physical Conditions to render them the fitter for Fermentation, as,

1. The most perfect Maturity designed by Nature in their Kind: For all Seeds and Fruits, which are brought to such a Perfection, that if sown in a fertile Soil, and at the right Season, they will produce a Plant of their own Kind, are fit for this Operation. But when they are crude, harsh, and watery, they are certainly less disposed for it. The rough Juice of unripe Grapes, or Crabs, is but little disposed for Fermentation, though the expressed Juice of them, when they are ripe, ferments spontaneously; and the Case is commonly the same in others.

2. A moderate Degree of Oiliness is also necessary; for very oily Substances grow rancid, rather than ferment, and those without Oil are unfit for Fermentation. Hence very fat Almonds, if they are pounded, are less liable to be affected in this Manner; but when they are carefully beaten up to a Milk with a great deal of Water, they usually become disposed for it. And when they are macerated in Water, and are just ready to shoot, the great Diminution of their Oil renders them fit for Fermentation.

3. They must not be too rough and astringent; for such Substances are with Difficulty excited to this Action: Thus the Juice of Bistort, Tormentil, and the like, can scarcely be raised to a Fermentation.

4. It is one of the chief Properties of a fermentable Substance to be dissoluble in Water: Hence Barks, Woods, and Roots, so long as they exist in these Forms, will not be changed in this Manner, though their expressed Juice, being then miscible with Water, will ferment very readily.

XIII. Ferments are principally,

1. All such Substances as are spontaneously very prone to Fermentation themselves, and therefore are soon excited without any other Ferment: Of this Kind in particular are the Juices of ripe Summer-Fruits, which are so much disposed to Fermentation, that they can hardly be kept from it, but by the Help of such Substances as have the Power of restraining it. Dough also, made of Flour, and worked with Water, if it lies in a warm Place, cannot be prevented from fermenting. We need not therefore be solicitous about this first Sort of Ferment, since Nature every where supplies us with it abundantly.

2. Fresh

2. Fresh Yeast, or Flowers of Malt-Liquor, or Wine, which work up to the Top in the very Action of Fermentation ; for if this light, frothy Matter be mixed with other fermentable Substances, it wonderfully promotes their Fermentation, provided it be fresh, and not fallen.

3. The same Matter, afterwards grown heavier, and subsided to the Bottom, if it is not too stale, still retains its former Virtue, though it is less active than before ; for these Lees being mixed by stirring excite a new Fermentation in their own Liquor, and usually do the like in others.

4. Cassia, Manna, Honey, Sugar, and the like inspissated Juices.

5. The acid, mealy, fermented, Leaven of the Bakers. For if fresh, sweet, Wheaten Flour, be kept in a dry Place, and secured from Insects, it may be preserved for Years without Corruption ; but if it be kneaded with Water into a soft, sweet Dough of a good Denseness, and set aside slightly covered in a warm Place, it begins, within the Space of an Hour, to open, and swell on all Sides, to be full of Bladders, to lose its Smell, Taste, and Tenacity, and acquire an Acidity, in which State passing under the proper Appellation of *ζύμη*, *Ferment*, it gave the first Name to the whole Operation, because if this Leaven is mixed with fresh Dough not yet fermented, it will make it ferment much the sooner, and more effectually. Hence it appears, that a Ferment may be soon prepared, without the Help of one pre-existent.

6. The Residuum of former fermented Liquors, which stick to the Sides of the Casks. For the Vessels being thoroughly penetrated and seasoned by the Subtlety of the Liquors they formerly held, are extremely adapted to excite a speedy and brisk Fermentation in any fresh Liquors that are put into them.

7. Among Ferments, we may also, reckon, though with less Propriety, the beaten White of an Egg, for it performs the Office of a Ferment in the following Case : When some fermentable Liquors are so diluted and thin, that they too easily discharge the Air and Spirits, which both excite and keep up a Fermentation, and consequently do not retain them long enough to change their fermentable into a fermented State, the White of an Egg, mixed with the Liquid, by its Tenacity, sufficiently inspissates it for the inviscating and detaining the active Spirits so long as it is requisite. Here indeed, it does not act properly as a Ferment, being itself not far from Putrefaction, but only assists the Causes of Fermentation, by preventing their too speedy Exhalation. The same Thing therefore may be easily effected by other viscid Substances ; for which Reason,

8. Some have added Salts, as well acid and austere, as alkaline ; but in this they have Respect only to particular Cases, as in the former. Thus, when fermentable Substances have so great a Quantity of Acid in them, as to impede their Fermentation, it is observed, that a prudent Addition of a small Quantity of an alkaline Salt, will promote the Operation. And again, when any Thing subputrid has happened to be generated in the fermentable Matter, a proper Addition of a little Acid, has restored a Disposition to Fermentation. Hence it appears, that these are not Ferments in themselves, nor so much as Fermentables, but in some certain Circumstances by removing the Impediment to it, they become Promoters of Fermentation. Tartar however, if it is good, may in some Respects be accounted a Ferment.

9. It is observed, that the most austere Bodies have sometimes, by their Admixture, procured a Fermentability, in some Subjects which they have been known to hinder in others. Hence Quinces, unripe Medlars, rough Cherries, and the like, have been referred to the Class of Ferments, though never properly and justly ; but when the fermentable Liquor is of itself too thin, weak, and watery, and therefore wants an Addition of somewhat rough, to enable it the better to retain its volatile Spirits.

XIV. We are now to consider the Preparations which fermentable Substances require to make them ferment more successfully. Those which fall under the first Class require, for this Purpose, a very particular Management, for,

1. As for farinaceous Seeds, when they are ripe, and in their utmost Perfection, dry, and intire, if they are then, in a warm Season, first infused in Rain-Water, particularly what falls in the Spring, contained in large Vessels, and are there suffered to lie till they are swelled, and have imbibed as much Water as they can, this is called Maceration.

2. The Corn being thus soaked, is taken out of the Water, and laid in large Heaps in an open airy Place. In a short Time there spontaneously arises in these Heaps a genial Warmth, by the Assistance of which the vital Powers of the Seed are quickened and rendered active, and begin to shoot, by putting forth their seminal Leaves, and the Rudiments of Roots. In this State, there is a great deal of Caution necessary, that the Corn, by too great an Effusion, may not begin to putrefy, and that by too much germinating and growing out into Leaves and

Roots it may not consume its mealy Substance ; for the Fermentation that comes afterwards always succeeds, in Proportion to the right Management of the Germination, which must be carried on to a certain Point, and no farther.

3. As soon as the Germination is sufficiently advanced through the whole Heap, the Corn must be immediately spread abroad, that it may continue no longer in a State of *Æstuation*, but be ventilated, cooled, and dried in a Place pervious to the Winds, especially the North-Wind. By this Means, its farther Germination is immediately stopped, the farinaceous Part being attenuated by the Operation, but not consumed. The Corn thus prepared, is slowly conveyed down a Pipe very much heated, which expeditiously dries it to a very gentle Degree of Torrefaction. This is what Tacitus calls *Frumentum corruptum* [corrupted Corn] and what now goes by the Name of *Malt*. The principal Alteration which the Corn undergoes by this Operation is, that its Viscosity is wholly attenuated ; so that though the native Corn will not dissolve in boiling Water, that which has undergone this Operation, is of so loose a Contexture, as most-ly to be dissolved, and to have its Medulla quite exhausted by it : For crude Wheat, by chewing, will be reduced to a Glue, which can scarcely be attenuated, by long retaining it in the Mouth ; but Wheat made into Malt, and broken under the Teeth, totally dissolves, and gently melts away in the Saliva. Besides, the Malt in making acquires a soft, sweet Taste, which was not in the Wheat before. When this Malt is to be used, they grind it into a Meal, which is then called *ground Malt*. What I have observed of Wheat, is found to be true of all the Seeds in the first Class of Fermentables. Thus if Beans, turgid with Maceration, are cast into a Heap, and suffered to heat till they germinate, and are afterwards dried expeditiously with a pretty strong Heat, and then ground, they will yield the same Phenomena.

XV. The Preparation of the second Class of Fermentables, is concerned about the soft pulpy Fruits, in treading, pressing, and pounding them, by which Means their Juice is separated from them with a considerable Froth. But if their Substance be of a harder Kind, they may be boiled in Water, and afterwards reduced to a soft Pulp, as is often practised with Apples and Pears. If they are pretty dry, they may be rasped to a Powder, and then pounded with Water to a Pulp, as in the tuberos Roots of the *Corona Solis*, Potatoes, and the like, in which there is not much Tendency to Putrefaction ; for if that be the Case, then instead of fermenting, they will putrefy.

XVI. Such as belong to the third Class, are beat into a Pulp whilst they are fresh and juicy, adding only a small Quantity of Water, to make it of a thinner Consistence, and then they are sufficiently prepared.

XVII. As for Bodies of the fourth and fifth Class, if they are of themselves too thick, they must be diluted with such a Quantity of Water, as will produce a Liquor capable of supporting a new-laid Egg : Hence, if these native Juices are too thin and watry, and you want a well fermented Liquor, take your Juice when it is newest, and has had no Fermentation, and boil it over a gentle Fire, in a very wide and shallow Vessel, till it has acquired a proper Thickness. If it be not thus treated, it will hardly ferment, or generate many Spirits. But if it be naturally too thick, it is reduced by Water to a just Consistence, as aforesaid, for in its first State, it will hardly turn spirituous, but readily degenerate into an Acid. Sugar that is dry, will remain unchanged in warm Weather ; but if it be reduced to the Consistence of Cream, it ferments violently, and is converted into a Liquor that plentifully abounds with Spirits. And the same Thing is true of Honey, &c.

XVIII. The next Thing to be considered, is the Quantity of the Ferment that is necessary to be mixed with fermentable Substances, after they are properly prepared, that the Fermentation may proceed the more successfully. Here observe, that

The Preparations of the first Class reduced to Malt, in the Summer, scarcely require the Assistance of any Ferment, but are of themselves sufficiently, and often too much, disposed to Fermentation. In Winter, however, the Addition of some Ferment is necessary, as well as an artificial Heat, without which they would not be put into Motion. Hence, again, if you take Care to keep them in a very warm Place, they will require, though in Winter, but little Ferment, about an Ounce of Yeast, for Instance, to twenty Pounds ; or Honey or Sugar in the same Proportion ; or Baker's Leaven in double the Quantity.

The second Class of Fermentables scarce ever want the Assistance of a Ferment, unless the Weather happens to be too cold, on which Account, if the Fermentation proceeds too slowly, you may add a little Yeast.

The third Class, in Summer Time, especially if it be pretty warm, readily enough ferment of themselves : In Winter, if the Fermentation is checked, it may be promoted by the Addition of Sugar, or Honey.

Nor in the fourth Class, are Ferments often necessary, for these Bodies, if the Weather is favourable, ferment so violently, that they can scarcely be kept within Bounds ; especially if the

the Weather be very hot, and the Fruits have had a fine Season for ripening.

The fifth Class very rarely want the Use of Ferments, they rather acting the Part of Ferments themselves. You need only raise an artificial Heat, and maintain it in one constant Degree. Hence therefore, we see, that upon the Whole, Ferments are not so necessary, as is generally imagined.

XIX. After Fermentables of what Kind soever have been prepared, and diluted with a sufficient Quantity of Water in the Manner explained, let them be poured into an oaken Cask, well seasoned with a Liquor of the same Kind fermented in it before. Let the Vessel stand in a Heat, between sixty and seventy Degrees, and let the Bung-hole be left open, that the Air may pass freely in and out, or only covered with a Bit of Flannel to prevent any Insects from falling into it.

XX. I took a glass Cucurbit, the biggest I could get, and placed it upright in a wooden Box in such a Manner, that by putting a small Quantity of Fire at the Bottom of the Chest, I could keep it in an equal Degree of Heat. I then filled it to three Quarters of its Capacity, with a crude fermentable Matter, properly prepared for Fermentation, covering its Orifice slightly with Flannel, and keeping up a Heat but of betwixt sixty and seventy Degrees, even in the Winter Season; and it was pleasant to observe the Phenomena that followed, which in this Way lie open to Observation, always happen in the same Manner, and make up the whole History of Fermentation.

1. The Mass, which at first is at Rest, and takes up a certain Space in the Vessel, begins insensibly to swell, rarely, to be elevated, and conceive an intestine Motion through all its Parts, which discovers itself by the strange Whirling of the Liquor, upwards, downwards, and sideways, nor ceases though the Impetus changes every Moment. In the mean Time Bubbles appear to be generated in every Part of the Mass, which with a strong Tendency endeavour to ascend, sometimes bursting as they rise, or else at the Surface, with a hissing Noise. Hence the whole Matter grows frothy, but the Surface in particular, and with a Noise, like that of Ebullition, there is discharged an acrid Spirit, that affects the Nostrils with its Acrimony, is acidish, wonderfully elastic, incoercible, bursting by its immense Force almost all Vessels in which it is confined, nor in these Respects is it to be equalled by any Thing that I am acquainted with. Hence the great Helmont thought proper to distinguish it by a particular Name, and therefore called it *Gas Sylvestris*.

2. Whilst these Things proceed in this Manner, the thicker Part of the fermentable Mass begins to be separated from the thinner, and is thrown up to the Top, where it is collected in a thick, spongy Crust, which accurately covers the Liquid underneath, and confines and repels its more active Parts, so that they cannot easily exhale before they have performed their proper Office. And then it is very entertaining to see, how great and constant an Agitation there is through every the least Particle of the more liquid Part that lies under the incumbent tenacious Crust. Certainly, we can scarcely conceive a greater Attrition than arises from the rapid Agitation of these Corpuscles among one another. And hence it comes to pass, that the Crust being elevated and separated by the repeated Explosions, there frequently bursts out a Vapour through the Clefts with a considerable Noise; upon which the Crust presently falling down closes again, and confines, as before, the active Principles, so that they cannot too easily exhale and be dissipated. And indeed, the Formation, and Continuance of this Crust, tends above all Things, to bring about a perfect Fermentation.

3. In the Midst of these Observations one cannot but take Notice that whereas all the thick Part of the fermentable Matter was at first carried up, and collected at the Top, there are now some Parts at the Bottom of the Crust, which growing less rare, and being no longer supported by those rare Bubbles that rendered them light, begin to descend through the liquid Part, are agitated upwards and downwards, form Bubbles about them, by their Assistance rise, and then by their Disposition sink again, and when it has happened alternately in this Manner for a good While, at last subside to the Bottom, and remain at Rest. Then other Globules take their Turn, and play the same Part, and when it has thus proceeded for some Time, it often happens, that the whole upper Crust, now grown heavier, and less rare, on Account of the exploded Spirits, sinks down at once, and soon after rises again, almost intire, and that with such an Impetus, as is hardly credible to one who has not seen it. When the whole Crust is perfectly dissipated and sunk to the Bottom, the Fermentation ceases, though the same Degree of Heat is still continued; a clear, thin, light Liquor swims at Top, and the Feces subside to the Bottom.

4. Hence in every true Fermentation, the fermentable Matter is at first of an unequal Consistence, but afterwards separated into two Parts, the more liquid, which is undermost, and the more solid Crust, which covers it. This Crust, so long as it keeps the upper Place, is called the *Flowers* of the fermentable Liquor, or Yeast, and is the most convenient and serviceable

of all Ferments. But, secondly, in the second Stage of Fermentation it is separated into three Parts, the Flowers at Top; the Liquid in the Middle, and a third Part, which begins to fall and be collected at the Bottom, under the Title of the *Fæces*, which are the thicker and heavier Part now quite exhausted of that Principle which caused the Fermentation. And, lastly, in the third Stage it is again divided into two Parts, the Upper, which is clear, fine, and thin, and called *Wine*; and the Lower, which is thick, and lies at the Bottom, named the *Lees* or *Mother of Wine*.

5. But there is nothing more surprising, or more carefully to be observed in this Affair of Fermentation, than that prodigious *Spiritus Sylvestris*, which rushes out with such an Impetus, when the Fermentation is at the Height; nor is there any Poison that I am acquainted with, that is so subtle, swift, and fatal; for if a very large Vessel full of the best fermentable Must, in the Height of Fermentation, should discharge this Spirit through a small Vent-hole in the upper Part, and the strongest Man should but once draw this Vapour into his Nostrils, he would drop down dead that very Moment; or if he drew in but a little, he would be taken with an Apoplexy; if still less, he would be deprived of his Understanding, and be a meer Idiot the rest of his Life, or else become paralytic. And hence the like Misfortune happens to those who are imprudently busy in close Wine-vaults, where the Wines are fermenting in the Time of Vintage. For this Reason, these Places ought to be purified by Fires, and aired by setting the Windows open. From Sugar dissolved in Water, and its Froth first fermented, we have an Account of a Spirit produced, which being drawn into the Lungs, in a very small Quantity, in an Instant stopped all Respiration, exciting an intolerable Asthma. *Phil. Trans. Ab. Vol. 2.* Let Physicians then consider the Force of Liquor drank in the very Act of Fermentation; and how violent that Spirit may be, which in Summer is generated in the human Body, from a too free Use of Summer-fruits, when very ripe; if by a convulsive Constriction of the Stomach they are prevented from passing any farther, and, by being kept in a warm Place, acquire and exert an extreme Elasticity and Acrimony. Hence in *Alcohol* there still remains a good deal of this Poison, and therefore if the Vapour of it be taken into the Nose in a great Quantity, and for a long Time, it causes the greatest Degree of Drunkenness, or a slight Apoplexy. If it be used too freely internally, it affects the Brain and Nerves particularly, and their Functions. In Chymistry we are still at a Loss from whence this Spirit arises. We know, indeed, it is the Production of an actual and present Fermentation; nor do we know that such a one is generated in any other Way; but we cannot conceive how it causes Death, without any Disease, or how it affects the Cerebrum, Cerebellum, or Nerves, without Matter, or without any visible Alteration, either in the Solids or Fluids.

As soon as the Fermentation is over, it is proper to close the Vessel, and let the fermented Liquor rest a While upon its Lees, for it will still consume much of them, and assimilate them to itself, and so be stronger, more spirituous, and much fitter for Distillation.

XXI. The Time necessary for completing a perfect Fermentation can scarce be determined exactly, as depending upon the Place where the Vessel stands, the Season of the Year, the Heat, and Wind it is exposed to, and the Nature of the fermentable Matter itself. In Africa, the Liquor of the Palm-tree passes through this Operation in the Space of a few Hours. In Asia too the Business is very soon over; but in the Northern Countries it proceeds but very slowly. The hot Summer Season quickens, the Winter checks it. The South-Wind promotes, the North-Wind retards it. The expressed Juice of Grapes and Sugar ferment suddenly and violently; other Fermentables more slowly. It is easy, however, to know when a perfect Fermentation is at an End, which is, when all the Phenomena mentioned have appeared in the Order described, and at last cease spontaneously; and then the Vessel must be immediately stopped, and the fermented Liquor kept upon its Lees; for otherwise the Spirit generated by the Fermentation, would in a short Time exhale, and leave the Liquor vapid, and good for nothing; whereas if the Liquor is kept quiet in a Vessel well stopped, it grows gradually finer, more subtle, and fuller of Spirit. Thus the fresh expressed Juice of Grapes may, by boiling, be inspissated without losing any of its Virtue, but after Fermentation, if it be only exposed to the cold Air, it is soon exhausted of all its Spirits.

XXII. The Liquor prepared by a complete Fermentation, has in all Ages, amongst all Nations, and in every Language, from whatever Matter it is produced, been called by the Name of *Wine*. Now the Nature of Wine is known by the following Marks which are common to every Sort of it:

1. It has a Faculty of producing a Temulency in the Functions of the animal Spirits and Actions. This is what it effects while it quickens, refreshes, exhilarates, disposes a Person to Mirth and Frolics, to be talkative, to rhyme and dance, then

proves an Incentive to the hidden and peculiar Passions of each Breast, reveals Secrets, and lays a Man open; and at last disorders, debilitates, takes away spontaneous Motion, so that neither Foot, Hand, Tongue, nor Reason can exercise their proper Offices; the Consequences of which are Sleepiness, Palsies, Apoplexies, and Death. This is a Property peculiar to Wine, nor is there any Thing like it in any other Body that I am acquainted with; for Henbane, Tobacco, Opium, and the Thorn-apple, whilst they affect the Brain, act in quite a different Manner. And this Faculty is much the same in every Sort of Wine; for Malt-liquor, Mead, Cyder, Perry, and Wine made with Gooseberries, Grapes, or any Sort of Berries, have constantly the same Effect; so that this surprising Power is solely the Effect of Fermentation.

2. But Fermentation likewise changes vegetable Juices from their relaxing, resolving, saponaceous, refrigerating, and for the most Part purging Quality, into one that corroborates, thickens the Humours, dries, and heats. Farinaceous Substances reduced with Water to a crude Pap, the inspissated fresh Infusion of Malt, before it is fermented into Beer, Mulsum, Syrups made with Sugar, Manna, or the Pulps of Cassia diluted with Water, the fresh expressed Juices of full-ripe Summer-fruits, and fresh fermentable Herbs at their Maturity; any of these too freely drank, produce windy Disorders in the Bowels, excite a Diarrhoea, and make a Person chilly. But when by proper Fermentation they are made into Beer, Mead, and Wine, how very different are their Powers and Effects! They retain nothing of their former Disposition, but all Things are become new. The fresh Juice of perfectly ripe Grapes is perhaps the most powerful Dissolvent of Humours we are acquainted with, and if used immoderately, often brings on a fatal Dysentery; and an Infusion of Malt inspissated by boiling (Sweet-wort) drank plentifully, has the same Effect. But strong, old Wine from the former, or generous old Beer from the latter, or the distilled Spirit from either of them, but especially *Alcohol*, is a good Antidote against the former.

3. Another perfectly singular Property of Fermentation is that from the fermented Matter it produces a Liquor, called a *fermented Spirit*, which has this particular Quality, that it is convertible into a lucid Flame, and at the same Time capable of being thoroughly mixed with Water, and yet quite of a different Nature from the *Spiritus Sylvestris* before described, which seems to be produced in the very Act of Fermentation, and lost at the same Time. This Liquor has scarce any Thing else like it. For the volatile inflammable Spirit, which I once saw in a very dangerous Manner burst out of the Retort in the Distillation of Phosphorus, would not be diluted and extinguished with Water. And what arises from large Quantities of human Excrements, thoroughly putrefied in a close Place, and takes Fire, and bursts into a violent and very dangerous Flame upon the Application of a Candle, seems to be of the same Nature, but horribly fetid. Oily Substances, when urged with the last Degree of Fire in Distillation, send forth white-bluish Fumes, which, upon holding a lighted Match to them, will also take Fire, but these return to an Oil, or a Phosphorus, that will not mix with Water. So that upon a careful and thorough Examination, I have not been able to discover any Liquor, which would absolutely, and spontaneously, as it were, mix with Water, and was at the same Time convertible into a pure Flame, except what is produced by the Fermentation above described.

4. Another Effect of Fermentation is the Generation of the Wine-stone, commonly called *Tartar*. I confess, that this is not produced from all Sorts of Wine; for it is neither generated from the best Malt-liquor, Mead, nor many other Sorts of fermented Liquors. From some Vegetables, indeed, this is formed good and pure, but then only when they have been converted into a Wine by a perfect Fermentation, and are intirely defecated. Hence, therefore, I always esteem Tartar as a peculiar Production of Fermentation, and think, it should be called the *Oily essential Salt of the Wine*, and be absolutely distinguished from the Mother or Lees.

5. Fermentation also induces a surprising Alteration in the Smell, Taste, native, and artificial Virtues of Things. The colobated Water of fresh Rosemary, for Instance, differs in every Property from what is drawn from it after it is fermented with Honey. The Must fresh pressed from mature Rhenish Grapes, that grow exposed to the Sun upon the Sides of Mountains, is of an exceeding sweet Taste, but when perfectly fermented and grown fine in the Cask, it has a grateful and acrimonious Acidity. Other Wines which are not thoroughly fermented, but have their Fermentation checked, keep their Sweetness, but very easily relapse into a Fermentation, and when it is finished turn acid. That Aloe and Colocynth, by Fermentation, lose their Bitterness, is an Observation of Wedelius, *Act. Lips.* 1686.

6. Fermentation also produces a new Smell, Taste, and Virtue, which are properly called *Vinous*. Even Meal, Sugar, and Honey, produce something that is acid, warm, and rich.

7. Fermentation generates these Spirits either from a Matter which was before of a different Nature, or from the Oil of

the Plant. This last is indeed very probable. But then from which of the Oils have they their Origin? Almost all the Chymists say, from their essential Oil. But by what Experiment they are able to determine this, I own, I cannot comprehend; for the *Spiritus Rectior*, which forms the essential Oil, is lost in the Fermenting. In fermented Matter, deprived of its Spirit by Distillation, there remains a considerable Quantity of Oil; and yet I could never excite a new Fermentation in the Residuum, nor by any Art extract more such Spirits from it. In every fermentable Substance, therefore, there is naturally only a certain Part which is disposed for the Generation of Spirits, in a determinate Quantity, by Fermentation. But there is yet another Thing which deserves Consideration, and that is, that the finest and most thoroughly fermented Wine generates white Tartar, which is full of a perfectly inflammable, and most penetrating Oil, and yet you can by no chymical Operation produce inflammable Spirits from this, as you can abundantly from the Wine. Hence it appears, that the Matter which is convertible into these Spirits by Fermentation, is of a singular Nature. But as Fermentation, thus productive of these Spirits, is every where at Work, there must of Consequence be vast Quantities of these Spirits generated, which are either consumed by Animals, or dissipated into the Air. The Saliva, Blood, and Urine of Animals, who constantly use these Spirits, hardly, indeed, afford any Spirits in Distillation; but then there is never wanting in Nature proper Matter for producing more, let but Fermentation come in to its Assistance. But Fermentation generates also something saline; since an Acid is here produced which is considerably volatile, though less so than the Spirit. Thus from Vinegar there rises a volatile Acid and somewhat pinguious Salt, which the unfermented Matter did not afford. The Spirits themselves which are generated by Fermentation, have somewhat in them of this volatile Acid. Hence the Oils, and acid Salts of fermentable Bodies, seem to be attenuated, rendered volatile, and united by Fermentation, and to be consumed in a certain Quantity. Thus if I distil unfermented Rosemary with Water, I obtain an Oil, which has the true Smell and Taste of the Rosemary, and a milky Water impregnated with the same Qualities. If I ferment it with Honey, and then distil it before the Fermentation is completed, it affords a white, thick, opaque, pinguious distilled Water, richly endued with the Virtues of the Rosemary, together with some Oil swimming at the Top, though in a smaller Quantity than before. But if it be first compleatly fermented, and afterwards distilled, you draw off an excellent pellucid Spirit of Rosemary, that will mix with Water, and is endued with great medicinal Virtues; but the former essential Oil appears no longer.

8. This Spirit produced by Fermentation, which partakes of the Oil, becomes by this Operation more volatile than Water itself; whereas the essential Oil, before the Operation, was not so volatile as Water; but the Vegetable might, by a gentle Heat, be deprived of all its Water, no Oil ascending with it.

XXIII. The Circumstances necessary to a successful Fermentation are principally these:

1. It is requisite that the fermenting Liquor should remain at Rest, that the Crust which forms itself at the Top may keep intire; for to be continually stirring, and mixing it with the Liquor underneath, prevents a perfect Fermentation.

2. There must be a free Ingress and Egress of the common Air, which must also be intimately mixed with the fermentable Matter, by treading, kneading, or pressing, otherwise the Fermentation will not proceed.

3. A Degree of Heat between forty, and at most eighty.

4. The Spring and Autumn in particular, are said to favour this Operation, when those Vegetables are in Flower, from which the Wine was made. Hence the Wine of Grapes is reputed to grow foul, and easily ferment again, when the Vine is in Blossom.

XXIV. The Checks to Fermentation, by which it is either impeded after it is began, or intirely stopped, are as follow:

1. The acid Vapour of burning Sulphur long included, and in a considerable Quantity, with that Air which is in the Cask above the fermenting Liquor. For if a Vessel first thoroughly penetrated and replete with this Vapour, receives the fermenting Liquor, and the upper empty Part be afterwards filled with the same Vapour, and carefully stopped, you will prevent any farther Fermentation, which, after some Time, may be revived by proper Means and restrained by the same Fumes. The same Effect follows from mixing a large Quantity of a strong Acid with the fermenting Matter. The Acids of Alum, Nitre, Salt, Sulphur, and Vitriol, prevent Fermentation, but at the same Time spoil the Liquors.

2. Alkaline Salts also, if they are mixed in great Quantities with fermenting Liquors, excite for the present a very consider-

considerable Effervescence, but that soon ceasing leaves the Liquor incapable of farther Agitation, its Nature being so utterly destroyed, that it can scarcely be afterwards raised to a Fermentation, but rather tends to Putrefaction. Hence it appears, that Alcalies are a greater Obstacle to Fermentation than Acids, the former destroying or suffocating all the Acid. Wherefore,

3. All Bodies intirely absorbent of Acids, if mixed with fermenting Liquors in a proper Quantity, after a short Struggle and Effervescence, put a Stop to this Operation; Chalk, Crabs-eyes, Coral, Pearls, Oyster-shells, Iron, Lead, and Tin, have this Effect.

4. Stopping the Vessel so closely, that nothing can pass in or out, provided the Vessel be so strong as not to be burst by the Force of the included Liquor. This is evident in new Ale put into very strong Bottles, where the Admission of Air converts the Fermentation, so long suffocated, and prevented, into the most violent Effervescence, and discovers a prodigious collected Force. The same Thing happens also in Casks, for there is a constant Struggle and Renitency between the fermenting Body and its containing Vessel.

5. A great Degree of Cold destroys all Fermentation, for under thirty-six Degrees of Heat it will hardly make any Progress.

6. Nor is too much Heat a less Obstacle to it, which, if it exceeds ninety Degrees, rather dissipates the active Principles of Fermentables, than assists and quickens them. Hence an Exhalation under a greater Degree of Heat inspissates Fluids to a Degree of Density, unfit for Fermentation. Boiling has a much quicker Effect, so that the richest Juice of Grapes, which can hardly be kept from fermenting, will by quick Boiling lose all its Disposition to ferment, and be converted into a Mass that will rest for Years without Alteration.

7. The Separation of the elastic Air, by Means of Boyle's Air-pump, during the Absence of which, this fermentative Motion intirely ceases.

8. Lastly, an extraordinary Condensation of the same Air with the fermentable Matter absolutely prevents both the Beginning, and Progress of Fermentation.

XXV. After Liquors thoroughly fermented have been kept some Time in a cool Place, together with their Flowers, and Fæces, and in Vessels very closely stopped, and pretty full, and by this Means having acquired more Spirits are proper for Distillation, it is advisable to sti them about, and mix them with their Lees, for they will then give out their Spirits in far greater Abundance. But then you ought to take Care that the Lees in Distillation do not subside to the Bottom of the Still, and being there condensed and burnt, affect the whole Liquor with an Empyreuma. For this Reason the Liquor must be kept stirring with a Stick, till it is ready to boil, by which Means the Lees being equally mixed, and afterwards kept in Motion by the Heat, there will be a perfect Mixture of the thicker Parts with the thinner. By this Method then you will obtain the Spirits, as well from the Fæces, as the Liquor itself, and will in the best Manner provide against an Empyreuma. But if the Liquors have rested some Time before the Distillation, there is less Danger of their ascending in Flatulencies, or rising out of the Still; whereas, if you go about to distil them when they are just fermented, the Impetus of Fermentation that still remains often carries them up when they come to boil violently, and so disturbs the whole Operation. At the Beginning, therefore, it is necessary to proceed with Caution.

XXVI. An Empyreuma is prevented:

1. By rubbing the Bottom and Sides of the Still with some pinguius oily Matter, before you pour in the Liquor.

2. By constantly stirring the Matter till the supervening Heat causes a thorough Mixture, and so prevents the thicker Parts from collecting and sticking to the Bottom.

3. Nothing more prevents an Ambustion or Empyreuma, than boiling Water briskly in the Still, and immediately after pouring in your Liquor at once; for then the hot Vapour filling the Cavity of the Still, will hinder the fermented Liquor from gathering and fixing to the Sides.

XXVII. If the whole fermented Matter consisting of the Flowers, the middle Liquor, and the Mother, which were first well kept and distinguished, are very carefully mixed before Distillation, you will extract good Spirits.

XXVIII. When your Liquor is heated to such a Degree, as to be just ready to boil, you must beware of the first Impetus. This is best guarded against, by leaving the Still one third empty, and covering the Aperture of the Still with a thin Cloth, before you fix on the Head, and then managing the Fire in such a Manner, that the Drops shall fall quick one after another. In this Manner your Distillation will go on safely, and after it is thus continued for some Time, it may with due Caution be somewhat increased, so as to obtain in the most commodious Manner all the Spirits. The thinner, and purer Liquors, indeed, as Mead, Wine, and old Beer, do not require so

much Caution; but in farinaceous Substances, distilled after a perfect Fermentation, you cannot be too careful. The former you may at once venture to distil in such a Manner, that the Spirits shall almost run through the Worm in a full Stream.

XXIX. In the Distillation of fermented Substances in the Manner described, there first comes over an acrid, heating, and pungent Liquor, of a very particular penetrating Taste, called *Spirituos*, and of an extremely active and volatile Nature, in which it is exceeded by very few Bodies; for a pure alkaline Spirit that flies off in Fumes from Tin, Glauber's Spirit of Nitre, and his Spirit of Sea-salt, and a pure volatile alkaline Salt, are all that are known to have a greater Degree of Volatility. This Liquor, when it is very much heated, readily takes Fire upon the Application of Flame to it, and will almost totally consume. Taken internally, it causes Drunkenness, Stupor, and Apoplexy. In a moderate Dose it wonderfully raises the Spirits. It very speedily heals Punctures, Dilacerations, and Pains of the Nerves. All animal and vegetable Substances put into it, are intirely preserved from Putrefaction, only somewhat altered in their Colour. If you dissolve a little of the finest Sugar in it, when it is not perfectly free from Water, the pellucid Liquor thus made, preserves the most tender Bodies. If it is diluted with Water, and then used warm as a Fomentation, with Sal Ammoniac and Vinegar, there is nothing, perhaps, that more effectually resolves Coagulations, dissolves inspissated Humours, prevents the Spreading of a Gangrene, and causes a Separation of the unsound Parts, or dries up a Defluxion of thin Humours more effectually. This Liquor is called *Spirit of Wine*, and that Part of it which comes over the very first, is called the *Præcursor*.

XXX. When this Spirit is all drawn off, if you urge the Residuum with the same Fire, in the same Vessels, you will obtain a Fluid which is less volatile, acetose, acid, astringent, cooling, nauseous, and fetid. At the Bottom will remain some thick Fæces, which by no Means nor Method can ever be brought to ferment again, and yield new Spirits, though from the Consistence of them one would expect it. But if you expose this Residuum to a very strong Fire, you may draw from it a fetid, empyreumatical Oil.

XXXI. If the Lees of any fermented Substance after Distillation are dried and burnt in an open Fire, they are converted into salt Ashes, from which may be obtained a sub-alkaline, or alkaline Salt. Hence it evidently appears, that the most perfect Fermentation is not able to render volatile that Matter of Vegetables, which is fixed by being burnt, and which is convertible into an essential Salt by proper Operations before Burning.

MEAL and MALT, worked together with a proper QUANTITY of WATER, ferment.

I. Having premised the general Doctrine of Fermentation, it will be proper to give some Examples of it, that the Manner in which both Art and Nature proceed may be understood. You are then to observe, that there are two different Ways of Operation; by the first of these Beer, or Wine of Corn, is prepared, and from thence Spirit of Wine; by the second, a Spirit is drawn immediately from fermented Corn, in the same Manner as it is from Beer. In the first Method, upon ground Malt you pour Water almost scalding hot, mix them well together, and let them infuse for three or four Hours, by which Infusion the Malt will impregnate the Water with its starchy Part, which would not have been effected by crude Meal. The Liquor then being drawn off from the Malt, must be boiled till it is reduced to a proper Thickness; and this Decoction, in this State, is emollient, loosens the Belly, purges, cools, and resists Inflammation. If, when this Liquor is cool, you mix with it some strong Ale-yeast, or Grounds, and let it stand in a warm Place, in a Vessel with the Bung-hole open, there will arise a violent Fermentation, which being quite completed, the Liquor is immediately strained cold through a Cloth, and stopped up very close in its Cask, and becomes very good Beer. But in order to preserve it for a considerable Time, and prevent its growing sour, you must add a certain Quantity of some very bitter Herbs to it whilst it is boiling. If this Decoction of Malt then is made sufficiently bitter, boiled to a proper Thickness, perfectly fermented, stopped up very close, and put into a Cellar, and, after it has been kept a considerable Time, is distilled, it will the first Time yield as fine a Spirit of Wine as you can obtain from any Sort of Wine by any Art whatever, which will be exceedingly fragrant, nor have any the least disagreeable Smell. I learnt by Experience that there is scarce any Difference betwixt such Beer and the most generous Wine, and could not help wondering, that this Art should be very well known and practised in all Ages of which we have any Account. Thus Diodorus Siculus tells us, *L. 1. That in those Countries, where there were no Vines, King Osiris taught the Inhabitants to make a Liquor from Barley, which in the Fragrance of its Smell, and Sweetness of its Taste, was not much inferior to Wine.* Herodotus also in *Enterpr* mentions an Ale, or Wine, made from Barley, *ἄλφιτον οἶνον* and *ἄλφιτον ποτὶν*. And Tacitus, *de Mor. Germ.* says, they had a Liquor prepared from corrupted Barley, or Wheat, which resembled Wine. And according

ing to *Actius ßum*, signifies Barley wetted, till it begins to germinate, and then dried together with the germinating Shoots.

II. The same Thing is performed in another and more common Way, as follows: They take of ground Malt fourteen Pounds, of Rye Meal seven, which are mixed and worked well together with hot Rain-water, till they are reduced to a Liquid of a moderate Thinness; this they put in an oaken Cask, which is placed in a wooden Chest, that it may keep in the Heat of Summer. It ferments briskly enough, and they leave it to itself till the Crust, which during the Fermentation is formed at the Top, disappears, and subsides to the Bottom. They then stop up the Cask, and let it stand for some Time, till the Liquor at the Top becomes clear, and acidish, and at the Bottom there is collected a large Quantity of a farinaceous Matter, not glutinous, but fit for Distillation.

MALT and MEAL fermented, and then distilled into INFLAMMABLE SPIRITS and VINEGAR.

I. Put a Pint of boiling Water into the Still, and make Fire enough to keep it in a State of Ebullition, and then pour in the Malt and Meal well fermented, taking Care first to shake and mix them very accurately, till the Still be two Thirds full. Then kindle a Fire, and at the same Time keep the Liquor continually stirring with a Stick, that the thicker Part may not gather at the Bottom, but the Whole continue as thoroughly mixed as possible. When it is grown so hot as to be just ready to boil, fix on the Head, and manage the Fire in such a Manner that the Head may be very hot, and the Spirit may distil pretty fast through the Worm. There comes out a clear, thin, spirituous Liquor. This must be watched carefully, to observe how long it continues to come off, and must be kept by itself.

II. This being quite drawn off, there rises an acidish, disagreeable, nauseous, white Liquor, in which there is nothing of the warm, spirituous Taste of the former, and which, if you draw it any farther, begins to grow fetid.

REMARK.

This first Liquor is that which in the History of Fermentation is described under the Character of a Spirit produced by Fermentation.

The DEPURATION of the SPIRITUOUS LIQUORS produced by FERMENTATION.

I. Take any fermented Spirits that have been once distilled, fill a Still two Thirds full with them, and distil them with a moderate Fire, so as to make them come over in a constant, little Stream, or just to make the Liquor boil. There will first come off a very clear, thin, fragrant Liquor, of a spirituous Flavour. Often remove your Receiver, to taste whether the same Liquor still continues to rise. When this ceases, change your Receiver, and keep this Spirit, which is called by the Chymists *Rectified Spirit of Wine*, by itself in Vessels very closely stopp'd. The Spirits which come over first are always the best.

II. When, therefore, in the Progress of the Distillation, there come off acidish, white, and watery Liquors, they must be taken and set apart, that they may not mix with the first. These rise in considerable Quantities, and go by the Name of a *Phlegm*, containing but very little Spirit.

III. There remains in the Bottom of the Still a Liquor that is somewhat thick, opaque, pinguious, acid, of a disagreeable Smell, and perfectly aqueous with Respect to Spirits. When pure Wine is distilled in this Manner, this Liquor thus remaining is always red, and of a roughish Taste, which Colour and Flavour are owing principally to the oaken Casks in which such Sorts of Liquors are kept, where they extract the oily and resinous Parts of the Wood; for when they are first distilled, they have neither that Colour, Smell, nor Taste, but acquire them by standing in these Vessels, and get rid of them again by Rectification.

REMARKS.

I. Hence we understand the Method by which these Spirits may be so depurated as to be obtained at last almost pure and alone; for the oftener they are rectified in this Manner, the more simple they are, depositing in every Distillation a watery, acidish Phlegm: By this Means, however, though you have them gradually purer and purer, yet they will always retain some Water.

II. Hence too we learn that the Spirit of Wine, sold commonly in the Shops, under the Name of *Brandy*, consists of four Parts, intirely distinct from one another: For it contains, First, the simple fermented Spirits; Secondly, a pure Water, which may be separated from it alone; Thirdly, a certain acetose, fermented Acid, which rises in the first Distillation of Spirit of Wine, and pretty tenaciously remains united with it, but may be accurately disengaged from it; and, Lastly, a small Quantity of a somewhat fetid Oil, which always discovers itself upon mixing Spirit of Wine, simple or rectified, with a dry, fixed Alkali, or upon drawing the Spirit from the same by Distillation. And hence it has happened, that the Chymists,

not sufficiently attending to this in their Use of common Spirit of Wine, have been surpris'd with Phænomena which they did not expect, and which were not so properly owing to the pure Spirit of Wine, as to other Bodies mixed with it. But these may be produced by other Causes, whereas this Spirit is the Effect of Fermentation alone.

III. There have been Authors of Note among the Chymists, who observing an Acid almost constantly intermixed with these Spirits, have hence asserted, that these Spirits are acid, and are generated from an Acid. But if we consult Reason in the Case, it will perhaps appear otherwise: And certainly those most pure and simple Spirits, when they are distilled from off a fixed alkaline Salt, are utterly void of all Acids that are known to us, and yet they are very good and genuine. I allow, then; that these Spirits are not produced, except from Vegetables, and not from these, but when they are grown somewhat acid by Fermentation; and yet so it is, that these Spirits are not acid, but generated from acetcent Matter. We cannot, therefore, with Justice assert, that these Spirits are acid or alkaline, but that they are of a peculiar Nature, and like nothing else.

IV. This Spirit exalted to its ultimate Perfection, by this Method of Rectification, will still always continue compounded.

ALCOHOL prepared from FERMENTED SPIRITS, without any ADDITION.

I. Take any fermented Spirit, especially one that is rectified, and with a gentle Heat, not exceeding a hundred Degrees, draw it half off in a tall, narrow, glass Cucurbit; the Half that thus rises first, treat again in the same Manner with very clean Glasses, and repeat this, till the Residuum that is left in the Cucurbit appears as strong as that which is drawn off. This Spirit is what goes commonly by the Name of *Alcohol of Wine*, and is looked upon as a most pure and simple Spirit that has nothing heterogeneous, no not so much as any watery Phlegm mixed with it. This was the Method made Use of by the ancient Chymists: However, more exact Researches made by later Chymists have discovered, that some Water still remains concealed in these Spirits, and to this is owing the ill Success of those Experiments, where *Alcohol* unmixed with Water is necessary. Besides, this tedious Operation takes up a great deal of precious Time, for which Reason the industrious Chymists were not at Rest, till they had discovered some more expeditious Method of preparing pure *Alcohol*, which they found might be done in the following Manner:

II. They contriv'd a Furnace, wherein a pretty large Still might be set in a Bath of Water, which could receive no more than two hundred and fourteen Degrees of Heat. They filled two Thirds of the Still with common Spirit of Wine, and fitted it with an Alembic that had a long, small, upright Tube, which bent backwards, and had its Extremity inserted into the Mouth of a Worm. The Distillation then begins with making the Water in the Bath boil, which makes the Spirit in the Still boil more briskly; by which Means, the Spirit alone being able to rise to such a Height, and through so narrow a Tube, will distil by itself, so long as there remains any of it in the Liquor. But as soon as the pure Spirit ceases to come over, the watery Phlegm not being able to ascend, the Distillation will be finished: And thus you will have, the first Time, and in two or three Hours, as much *Alcohol* as you could obtain by the preceding Method in the Space of a Month. No-body, therefore, should be without this Apparatus, who has Occasion for a large Quantity of *Alcohol* in his chymical Operations. Upon a nice Examination, however, it is found, that even in this Way, there was still somewhat, though indeed a very small Quantity, of Water, intermixed with the *Alcohol*, which in Distillation, perhaps, might be carried up by the Spirits. For this Reason, I repeated the Distillation first with the *Alcohol* alone in the same Furnace, and I had then an *Alcohol*, which appeared with all the Marks of Purity, but yet was found to retain some Water. Hence, therefore, I am induced to believe, that the Spirit can never, by this Method, be absolutely separated from the Water, though it must be acknowledged, that the Quantity of Water that remains after this Operation is as little as possible.

III. For this Reason, I afterwards performed the Distillation in the following Manner: I took the *Alcohol* which rises the first Time in the Method described; with this I filled a Still half full, and added half a Pound of the purest, hottest, dryest, decrepitated Sea-salt; then putting on the Alembic, and making all very close, I let them continue thus for the Space of twelve Hours, in a gentle Heat, so as by no Means to make the *Alcohol* boil. I then began the Distillation, and the two first Ounces of *Alcohol* that came over I kept by themselves, lest there should be any watery Vapour in the Tube of the Alembic, or the Worm, which would be easily brought away by these first two Ounces. The first two Thirds of the following *Alcohol* I received into a very clean, dry, glass Vessel, and kept by themselves in Bottles very carefully stopp'd. Then I drew off the rest as before, and kept these last Spirits also by themselves. There remained in the Still a moist Salt, which attracted to itself the Water from the

the *Alcohol*, and retained it so tenaciously, that though acted upon by the Heat of boiling Water, it would not part with it, and suffer it to rise with the *Alcohol*. Nor does the Salt, prepared in this Manner, make any Alteration in the *Alcohol*, by mixing itself with it, because it is decrepitated, and put in hot. By this Method, in a very short Time, may be prepared the purest *Alcohol* for any chymical Purposes.

REMARKS.

I. *Alcohol*, brought to this Degree of Perfection, is the lightest Fluid next to Air, perfectly transparent, very thin, most simple, totally inflammable, without producing any Smoke, or diffusing any disagreeable Smell whilst it is burning; is exceedingly volatile, without leaving any Fæces; absolutely immutable in Distillation; extremely expansible by Heat; very easily disposed to Ebullition by Fire; of a very pleasant Smell, and of a particular grateful Taste. All the Humours of the human Body, that we are acquainted with, it coagulates in an Instant, except the pure Water, and Urine, whilst it hardens all the solid Parts, and thus preserves both from Putrefaction, or spontaneous Colliquation: It preserves the Bodies of Insects, Fish, Birds, and other Animals that are put into it, from Corruption, or Alteration, for Ages, if closely stopped: With Water, Vinegar, any acid Liquors, Oils, and pure, volatile, alkaline Salts, it suffers itself to be mixed, and that nearly with an equable Mixture; and gummy and resinous Substances it dissolves. So that we are acquainted with no Liquid, produced either by Nature or the Art of Chymistry, that is capable of being united with more Bodies than is *Alcohol*. But in a particular Manner it proves an excellent Vehicle for the Spiritus Rectior of Vegetables, which by uniting with it may be extracted from its proper Body, retained, and applied to medicinal, and other Uses. The great Masters of Chymistry, distinguished by the Title of *Adepts*, are supposed, in their Description of the artificial Preparation of this perfect *Alcohol*, to have shadowed out the Preparation of the Philosophers Stone: But it is certain, that this *Alcohol* owes its Origin to Fermentation alone, nor can be prepared in any other Manner whatever.

II. In the human Body, by its Smell, Taste, and Vapour, it wonderfully quickens, gratefully affects, and invigorates the animal, natural, and vital Spirits, Nerves and Brain: Hence it exhilarates the Mind and Senses, makes a Person brisk and agile, and proceeding through various Degrees, at last causes Drunkenness, which, as it here comes on very suddenly, so likewise it goes off in the same Manner. The Blood, its Serum, and other thin Juices it coagulates in an Instant, and hence being drank imprudently, it is said to have killed Persons on the Spot. Applied externally, it dries, and corroborates the Vessels, and coagulates the Fluids contained in them, wherever it can penetrate. The Extremities of the Nerves where it can reach it instantly dries, contracts, and deprives of all Sense and Motion. Hence it appears, how imprudently, and often, how unhappily, *Alcohol*, either pure or impregnated with aromatic Spirits, Camphire, or the like, dissolved in it, and ordered to be applied hot, and enforced with Friction, is made use of as a Fomentation in chirurgical Cases. I would advise, therefore, to be cautious upon these Occasions, lest under a specious Pretence of Vivification, Calcification, Resolution, Dissipation, and Restoration of Agility, you obtain no other Effects than what I just now ascribed to these Spirits. In Wounds, Ulcers, and other visible Disorders, pure *Alcohol* performs the very same Thing, viz. coagulates, dries, and burns the Nerves. It is true indeed, it takes from the Nerves all Sense of Pain; but then at the same Time it destroys all their Use. And it has the same Effect, in mitigating Punctures or Dilacerations of the same Parts. It stops Bleeding at once by contracting the Vessels, and coagulating the Blood, where it is applied, but with the concomitant Circumstances just mentioned. Hence, therefore, it is a very speedy, and often an excellent Remedy in these Cases, though always attended with some Inconveniences.

III. From what has been said then, we learn what Effect pure *Alcohol* has upon animal or vegetable Substances immersed in it. For it dissolves into itself, and extracts whatever is oily in them; whence they become attenuated, contracted, and often corrugated. In this Manner the Preparations of the Parts of Animals have often been observed to be changed: And aromatic Flowers, Leaves, and Fruits are thus affected from the same Cause. Small Birds in their Feathers, and other little Animals covered with hard Scales, immersed in hot *Alcohol*, are preserved in their full Beauty, because this Attenuation, though it really happens, is concealed under their Feathers and Scales. These Animals being macerated for some Time in the purest *Alcohol*, till they are thoroughly penetrated by it, and then taken out, and dried in a hot, but not fervid, Oven, and afterwards put into glass Vessels, and intirely debarred from any Communication with the external Air, may be kept in their proper Form for Ages, to the very great Advantage both of Natural and Medicinal History, because they afford lively and certain Characters by which they may be known.

IV. Since there are infinite, and oftentimes very inviting, Occasions in which Chymists and other Artificers stand in need

of the true and purest *Alcohol*, the least Remainder of Water rendering the Operation unsuccessful, it is absolutely necessary we should have some Marks by which we may be able to distinguish, whether our *Alcohol* be pure or not: The principal of these are,

1. If the supposed *Alcohol* contains any Oil dissolved in it; and so equably distributed through it, that it is no Ways perceptible; then upon the Pouring of Water into it the Mixture will grow white, and the Oil will separate from the *Alcohol*.

2. If any Thing of an Acid lies concealed in *Alcohol*, a little of it mixed with the alkaline Spirit of Sal Ammoniac will discover the Acid by an Effervescence, for otherwise there would be only a simple Coagulation.

3. If there be any Thing of an Alkali intermixed, it will appear by the Effervescence excited by the Affusion of an Acid: And as for other Salts, they are seldom found in it.

4. But it is a Matter of greater Difficulty to discover whether there be any Water intermixed with it; and therefore Chymists have contrived certain Methods, by which this may be also determined. The first was the repeated Labour of so many Distillations, which they thought sufficient Grounds for them to presume that they were in Possession of pure simple Spirits, without the Admixture of any Phlegm; but, as I took Notice before, I could never by this Method obtain pure *Alcohol*; but it would to the last retain something of Phlegm. Secondly, they put some *Alcohol* into a very clean, dry Spoon, and, heating it, set it on Fire in a Place where there was not the least Wind, and if after the *Alcohol* was burnt out, there was no Moisture left in the Spoon, they pronounced it pure *Alcohol*. Some more curious Persons, however, by other Experiments, discovered, that by the Action of the Flame, the Water that lay concealed in the *Alcohol*, might be dispersed into the Air, and consequently that the Absence of Water in the Spoon, after the Consumption of the *Alcohol*, was no certain Proof, that there was none contained in it, before it was set on Fire. In the third Place, therefore, they took some of the best Gun-powder, and drying it very carefully put a little of it into a clean and very dry Spoon; and poured some *Alcohol* upon it, which being heated, they just stirred it in the very Surface, and letting it burn down in a very quiet Place, if the Powder continued dry enough to take Fire by the Flame when just spent, they concluded that the *Alcohol* was pure: But against this Experiment there lies the very same Objection as against the former. These two last Methods, therefore, when they succeed, demonstrate, that the *Alcohol* is in a very great Degree, but not absolutely free from Water. In the fourth and last Place, therefore, there has been another Way discovered, by which it may be certainly known whether *Alcohol* contains any Water or not, which is this: Take a chymical Vial, with a long narrow Neck, the Bulb of which will hold four, or six Ounces of *Alcohol*. Fill this Two-thirds full with the *Alcohol* you intend to examine, into which throw a Dram of the purest and driest Salt of Tartar, coming very hot out of the Fire; then mix them by shaking them together; and set them over the Fire till the *Alcohol* is just ready to boil. Being thus shaken and heated, if the Salt of Tartar remains perfectly dry, without the least Sign of Moisture, we are sure that there is no Water in this *Alcohol*. By intermixing this Salt of Tartar, I have been enabled to discover Water in what has been taken for the best of *Alcohol*: For I took some *Alcohol*, which had burnt intirely away, and had set Fire to Gun-powder, and upon putting such an alkaline Salt into it, I perceived by the Moisture it acquired, that there was still some Water in it: And again, I took some *Alcohol*, in which there was a fixed Alkali that had remained dry for a long Time, and was still so, when I just put a Drop or two of Water to it, and though the Salt had continued very dry so long, it soon after grew moist from so small a Quantity of Water, and appeared in oily Streaks running down the Sides of the Glass.

Hence the singular Nature of *Alcohol* is abundantly determined by its individual Properties; especially if to what has been said you add this Observation, that such an *Alcohol* is not visible whilst it distils through the Alembic: For it neither forms dewy Drops like Water, nor runs down in Striae like strong Spirit of Wine, but it is quite invisible; which Property was not unknown to the ancient Chymists and evidently appears by their Writings. This, then, is the ultimate Effect of Fermentation, for it is scarce possible to carry this *Alcohol* to any greater Perfection, or, indeed, to make any Alteration in it.

The PRODUCTION of ALCOHOL by ALKALIES.

I. Because a good Quantity of pure *Alcohol* is often wanted on a sudden, when there is no chymical Apparatus ready for preparing it, and the Purpose may well enough be answered, though there should, by Chance, some fixed *Alkali* be mixed with the Liquor, the Industry of the Chymists has found out the following Method of preparing it: To common Spirit of Wine they pour a third Part of its Weight of the purest and driest Pot-ash, which presently sinks to the Bottom. Upon shaking the Vessel, the Salt immediately grows moist, and begins

to dissolve at the Bottom, whilst a thin red Liquor swims at the Top; and the more they are shaken, the greater is the Dissolution underneath, and the Separation upwards; nor is it ever possible to make them mix, but as soon as ever they come to rest, they immediately collect themselves into two perfectly distinct Strata. And here the stronger the Spirit of Wine is, the greater will be the Quantity of the upper Liquor; and so on the contrary.

II. Let the Vessel rest for some Time, that the Liquors may become intirely separated, and then by a gentle Inclination of the Vessel pour off the upper Liquor into another clean, dry Cucurbit, taking as much Care as you can, that none of the lower runs in with it. At the same Time let there be ready a fixed, *alkaline* Salt, very well dried by the Fire, and let it be put, while it is yet hot, into the Cucurbit, which contains the first Spirit that has been once already drained of its Water. Let them be shaken together, the Cucurbit being stopped, for a considerable Time, and you will perceive the dry Salt to contract a little Moisture; you are then to persist in shaking them together, till you observe that no more of the Salt will be dissolved, but that there swims at the Top a red limpid Liquor, which will be so much the purer, as the *alkaline* Salt was drier and hotter, and the longer it was shaken with the Liquor. This done, pour off the Liquor into a tall dry Bolt-head, and cast therein a little more of the driest and purest *alkaline* Salt, as hot as may be, and set them in an hundred Degrees of Heat, shaking them about very frequently; and if the Salt does not then grow at all moist, the *Alcohol* will be perfectly freed from its Water; but then it will have a red Colour, a Taste not simple, and a somewhat disagreeable Smell, and by its Effervescence with Acids, and its lixivious Taste, will evidently discover the Presence of a latent *Alkali*.

In this Operation there always appears a pinguious Oil, which separates itself from the Spirit of Wine, or the Pot-ash, or perhaps from both, and has a foetid Smell. Besides, the fixed *Alkali* here used, by absorbing and uniting with itself the Acid which was in the Spirit of Wine, is altered in its Nature, and at last becomes a compound and pretty volatile Salt. Here I found, that when this Salt had been frequently used, and still dried after every Operation, it became at last almost of the Nature of the Terra Foliated Tartari, and intirely unfit for any Purpose, where there was required a fixed *Alkali*.

III. *Alcohol*, thus prepared, and distilled in a Cucurbit, over a gentle Fire, becomes sufficiently pure, and fit for almost all Purposes that require a simple *Alcohol*. It is true indeed, there will be somewhat *subcalcescent* still united with it, though this too may be removed, by cautiously adding a few Drops of Oil of Vitriol before the Distillation, and proceeding so long as there is any Effervescence excited, and no longer; for if you then distil it, your *Alcohol* is reckoned to be pure.

IV. Hence also it appears, that the Separation of pure *Alcohol* is not so easy as some People pretend: For in Distillation there is a somewhat acid, and a watery Liquid, which intimately adheres to the Spirit, and which closely unites itself with the *Alkali* that is added to it: Therefore, we need not be surprised, that some very curious Experiments, which require the purest *Alcohol*, do so seldom succeed. And hence it is plain, that an *alkaline* Salt will often properly dispose *Alcohol* for particular Operations, either as it frees it from its Water, Acid, and Oil, or as it impregnates it with an *alkaline* Quality, and thus improves its dissolving Power. We must have a due Regard, therefore, to all these Considerations, before we can determine its Effects. *Boerhaav. Chym.*

Thus I have traced the Preparation of *Alcohol* from the Vegetable from which it is generated, through all the succeeding Processes necessary for its Production. And because all vinous Liquors borrow their intoxicating Qualities, and all their Properties wherein they differ from other Fluids, from the *Alcohol* which resides in them, I shall make some Remarks, with Respect to the Uses generally made of them in common Life.

First, then, as vinous Liquors have Effects upon animal Bodies, nearly allied to those of the Gas Sylvestre, or incoercible Spirit which flies off from fermenting Liquors, it seems near a Certainty, that fermented Liquors inebriate, and produce all their deleterious Effects by a Portion of this Gas Sylvestre residing in them.

Hence appears the Imprudence, I should rather say Madness, of those who take into their Stomachs large Quantities of a Fluid strongly impregnated with the most subtle and penetrating Poison known in Nature, and which we find by daily Experience never fails to disorder, and if persisted in, to destroy the animal Machine. The Frequency of this Practice is amazing, and would scarcely be credible, if it was not common. I should think myself happy, if any Thing I could say would put the least Check to this heinous Crime, to which it is astonishing there should be any Temptation, for I am satisfied, that this alone destroys more Lives than the Accidents of War, added to all the Distempers with which Providence has thought proper to afflict Mankind; and it is very remarkable, that besides the

Distempers produced by drinking spirituous Liquors, an habitual Use of these renders all Diseases from other Causes more difficult to cure.

It is certain, that fermented Liquors are deleterious, in Proportion to their Strength, that is, in Proportion to the poisonous Spirit or Gas they contain. However, though small fermented Liquors do not immediately manifest their Effects, yet I think it is not to be doubted, but that an habitual Use of even these must in the End induce an Alteration in the Constitution to its Disadvantage. I am sensible, a Habit of drinking these Liquors renders them somewhat necessary, and makes it difficult to leave them off, and sometimes even dangerous. It is therefore a great Imprudence in People of Condition, to inure their Children to the Use of Wine, and other fermented Liquors, from their most tender Years.

If we consider *Alcohol* as acting upon the Stomach only, and at the same Time reflect upon what is observed above with Respect to its Operation on the Nerves, which is, that it dries and contracts them, and deprives them of all Sensation and Motion, we shall readily perceive, that if taken in the Stomach, when it is empty especially, they must necessarily, by their proper Action, take away that Sensation which we call Hunger, and destroy that Elasticity of the Fibres of the Stomach, which is absolutely necessary to the Digestion of the Aliment. To these Inconveniencies arising from the internal Use of *Alcohol* it may be added, that it coagulates animal Juices, and consequently all the Fluids it finds in the Stomach, I mean, those Fluids which are separated in the Glands of the Mouth, Fauces, and Stomach, and which are designed by Nature to promote the Solution of the Aliment; now when these are coagulated, and rendered viscid, they are utterly unfit to promote the above-mentioned Solution, but rather prevent it. Every one that has seen a Person, much habituated to drinking Drams, take a Vomit, must have observed him to discharge from his Stomach great Quantities of a viscid roapy Jelly.

If we consider spirituous Liquors as a Solvent of the Aliment, we shall find it so far from being fit to promote this Solution, that it greatly contributes to prevent it, for it hardens animal and vegetable Substances, and hinders their Solution in the Stomach, for the very same Reasons, that it prevents their Putrefaction out of it.

It would be well if spirituous Liquors had any Virtues to make Amends for the Havock and Destruction they make in the World. And, to do them Justice, I believe, that rough austere red Wines may be of Service for bracing up a relaxed Habit, and promoting Digestion vitiated by an accidental Laxity of the Organs subservient thereto; and that the more penetrating white Wines, well diluted, may be of Service as Medicines. The particular Cases are taken Notice of under the Article *ALCALI* from Hippocrates, and are also mentioned under the several Disorders wherein they are useful.

But with Respect to any Thing more spirituous than Wine, there is scarcely any Case wherein they can be of sufficient Service to compensate for the great Mischiefs they produce; inasmuch that every Person who drinks a Dram, seems to me guilty of a greater Indiscretion, than if he set Fire to his House; and for the same Reasons, Cordial-waters are the most dangerous Furniture for a Closet, particularly as there is something like Fascination in them, which obliges the Possessor to make Use of them, to the Destruction both of Health and Intellects.

On this Account, I cannot forbear admiring the great Wisdom of Mahomet, who has strictly forbid his Followers the Use of fermented Liquors, for better Reasons than are generally apprehended.

However *Alcohol*, and fermented Spirits in general, are of good Service externally applied in many Cases. Thus Spirit of Wine, especially camphorated, is a very good Addition to Fomentations designed to resolve Inflammations, whether external or internal.

Wine used as a Fetus, or applied externally, cools, and allays the Heat of the Parts, notwithstanding it warms taken internally. Spirit of Wine does the same. Pliny says, it is the Nature of Wine to warm the Viscera taken internally, but to cool externally applied. *Harris Differt. Chyru.*

Hippocrates says, that Ulcers should be washed with nothing but Wine. *Galen, L. 3. Methodi, Cap. 4.* says, Wine is the best Medicament for Ulcers. Dioscorides says, that Wine in Lana succida, is a good Application for Wounds and Inflammations. Dr. Harris from his own Experience affirms, that linnen Cloths dipped in warm Spirit of Wine, often cure Burns from scalding Water, melted Pitch, Fire, and Gunpowder, better and sooner than all other Applications. He gives an Instance of a Boy that was blinded by a Drop of Pitch falling into his Eye, and of another blinded by Gunpowder, who both recovered their Sight the very next Day, by a Fetus of warm Spirit of Wine. *Harris Differt. Chyru.*

Dr. Harris also affirms, that warm Wine is the best Application for Wounds, Ulcers, and Inflammations, especially those of the most sensible Parts, that are full of Nerves, Tendons, and Blood-

Blood-vessels, as the Fingers and Toes, where Incisions and Punctures often cause great Pain, and endanger a Mortification.

The Turks, who are ignorant generally of Surgery, unless perhaps some wandering Jew practises it amongst them, foment their Wounds, and wash them with Wine successfully.

Gangrenes will sometimes happen from unskilful Cutting Corns, or the Nails of the Toes, especially if they are exasperated with Unguents and Plaisters. Spirit of Wine and Theriaca are the best Topics in such Cases. *Harris Differt. Chyrurg.*

Spirit of Wine used as a Fetus for a sufficient Time, and upon some Occasions repeated, extinguishes the Heat of an Erysipelas, sooner than any other Fetus whatever, whether the Erysipelas is cutaneous, true, and genuine, or spurious, more profound, and deeper in the Flesh. *Harris Differt. Chyrurg.*

Erysipelatous Pains in Wounds and Ulcers are cured by a Fetus of Spirit of Wine. *Harris Differt. Chyrurg.*

If Vesicatories cause great Pains, and endanger a Mortification, a Fetus of Spirit of Wine will cure them. *Harris Differt. Chyrurg.*

Inflammations caused by Vesicatories, which are attended with violent Pains, and a blackish Colour, and which tend to a Gangrene, are easily cured by fomenting them with a linnen Cloth doubled, and dipped in hot Wine, or Spirits of Wine, and afterward applying such a Cloth wetted with Wine, or Spirit of Wine upon the Part, without Plaisters, or unctuous Medicines. *Harris Differt. Chyrurg.*

There is a Species of Colic, which Women are subject to; which is extremely painful, and is sometimes fixed on the right Side, sometimes on the left, below the Navel, without Vomitings. Dr. Harris says this is cured in a Day's Time, or on the same Day, by an Application of doubled linnen Cloth dipped in very hot Spirits of Wine, and continued a long Time, even where Narcotics are useless, or sometimes noxious. *Harris Differt. Chyrurg.*

This I have frequently found of great Efficacy, in the Case the Doctor mentions. As this Author was a Man of undoubted Integrity, his Authority has the greater Weight.

Pure Alcohol is the best of Stiptics, for being received upon linnen Tents, whilst it is almost hot, and is pressed upon a bleeding Wound, and covered over with a Hogs-Bladder oiled, the Hæmorrhage will presently be stopped; and the Dressings may be kept on three Days, in which Time the bleeding Vessels usually concrete together. *Boerhaave.*

As to the Antiquity of Alcohol, those who are solicitous about raising the Character of Homer, by attributing to him all Sorts of Knowledge, are furnished with a very good Opportunity of making him a most excellent Chymist. This great Author, speaking of the Wine with which Ulysses made Polyphemus drunk, says it was given him by Maron, and that it was so strong, that though mixed with forty Times the Quantity of Water, yet retained a great Fragrance. If this was not a poetical Exaggeration, Wine like this must be stronger than any Alcohol known at this Day. But, in reality, we meet with nothing like Spirit of Wine before the thirteenth Century, when Thaddæus takes Notice of it. And some little Time after, Arnaldus de Villa Nova mentions it in very high Terms, under the Title of *Aqua Vini*. It is certain, that the thirteenth and fourteenth Centuries were remarkable for many considerable Discoveries; but as the Tree of Knowledge brought Death originally into the World, so the Period above-mentioned, together with an Increase of Knowledge, introduced Gun-powder, the Pox, and Brandy, the most pernicious of the three by many Degrees.

All that Set of Alchymists in general, who acquired the Name of *Adepts*, speak much of Spirits of Wine, as a Thing used in the Preparation of their secret Menstruums; and hence Weidenfeld was of Opinion, that we only wanted the Preparation of their true philosophical Spirit of Wine, in order to be let into all their Secrets. But Boerhaave seems inclined to think, the Spirit which we are acquainted with answers the Characters of that used by the old Chymists in every Respect, except that theirs is said to dissolve Salts, which ours will not do. But he makes a Doubt, whether this depends upon our Ignorance of their true Spirit, or our Want of knowing their Method of preparing Salts, in order to render them thus soluble.

ALCOHOL, considered as a MENSTRUUM, dissolves

1. All true vegetable Refins.
2. Most Sorts of Gum Refins.
3. Pure, volatile, *Alcaline Salts*.
4. Pure, fixed, *Alcaline Salts*; when rendered extremely dry.
5. Most saponaceous Substances.
6. Sulphurs, when opened by *Alcaline Salts*.

But ALCOHOL will not act upon

1. Native compound Salts, as Sea-Salt, Nitre, and Sal Ammoniac.
2. Nor Sulphur, unless opened by *Alcaline Salts*.

3. Nor Earth, Mercury, Metals, Semimetals, Stones, nor Gems.

ALCOL. *Vingar. Rulandus.*

ALCOLA. The same as Aphtha, in the Phrase of Avicenna. See APHTHA.

In the Language of Paracelsus, *Alcola* is the Tartar, or Excrement of Urine, whether it appears in the Form of Sediment, Sand, or viscous Mucilage. Hence

ALCOLITA, is by this Author applied to signify Urine. *Castellus.*

ALCOLISMUS. The Reducing any Substance to fine Particles by Corrosion, or otherwise. *Rulandus.*

ALCONE. *Brass. Rulandus.*

ACOR. *Burnt Copper. Rulandus.*

ALCORE. A Sort of Stone, having Spots in it resembling Silver. *Rulandus.*

ALCRE. *Αλκρη.* Erotian says this is the Name of a Plant mentioned by Hippocrates. Foesius thinks he means *αλτη*, The Elder.

ALCUBD, or ALUMBATR. Rulandus explains this Butyrum crudum, crude Butter, which Johnson, and Castellus transcribe, without any farther Explanation.

ALCUBRITH, ALCUR, or ALUZAR. *Sulphur. Rulandus.*

ALCYONIUM, *Bastard Sponge.* Is a Sort of spongy Plant which is found in the Sea, or upon the Shore, or rather a Froth of the Sea, which is hardened by the Heat of the Sun, and of different Shapes and Colours.

What those Bodies are, which the Greeks call *Aleyonia*, and whence they have their Original, has been a controverted Point among the Botanists, and is not yet decided. Pliny writes that they are the Nests of some Sort of Birds, that build in the Sea. Imperatus would have them to be nothing but Bits of Straws and Hair conglobated into a Mass by the Agitation of the Waters. Schrochius affirms they are produced of Reeds, and their Leaves, and that in several which he cut open, he found the very Plant, the Reed, rolled up and inclosed in the Middle. Dioscorides reckons five Species. The first is called

Alcyonium durum, Offic. *Alcyonium durum sive primum* Dioscoridis Imperato, C. B. 368. Tourn. Inst. 576. *Alcyonium spongiosum Officinatum*, J. B. 3. 816. Chab. 579. Raii Hist. 1. 82. Hist. Oxon. 3. 654. *Alcyonium spongiosum Dioscoridis, flavum marinum quorundam*, Donat. 11. *Alcyonium primum Dioscoridis*, Calc. Mus. 21. *Alcyonium, seu eorum ruscum*, Worm. 48. HARD BASTARD SPONGE. Dale.

It resembles in some Measure a Sponge; but it is hard, leavy, and of a sour Taste, and disagreeable Smell, like a Fish: It is commonly found on the Sea Shore. *Lemery des Drogues.*

The second is called

Farrago, Offic. Aristot. *Farrago australis*, *Alcyonium secundum Dioscoridis*, C. B. Pin. 368. *Vesicaria marina nigra*, *Farrago Aristotelis quorundam*, J. B. 3. 818. Chab. 580. Dale.

It is called by Lemery (*Favago australis*, C. B.) It is light, porous as a Sponge, and smells like the Alga. *Lemery des Drogues.*

The third is called

Alcyonium vermiculatum, Offic. *Alcyonium vermiculare Imperati*, C. B. 368. *Alcyonium vermiculare*, Imperat. 639. Hist. Oxon. 3. 654. *Alcyonium tertium Dioscoridis*, Cæsalpin. 608. *Alcyonium vermiculatum purpureum candidum, & flovescens*, Tourn. Inst. 576. VERMICULATE BASTARD SPONGE. Dale.

It is called by Lemery *Milesum*.

It is in the Form of little Worms, of a purple Colour; sometimes white, and other Times yellow, and they give it the Name of *Alcyonium vermiculare*. *Lemery des Drogues.*

The fourth is called

Alcyonium stuposum, Offic. *Alcyonium stuposum Imperati*, J. B. 3. 817. Raii Hist. 1. 82. *Alcyonium stuposum*, Imp. 640. Tourn. Inst. 576. *Alcyonium stuposum dictum*, Chab. 579. *Alcyonium stuposum vel quartum Dioscoridis & Imperati*, C. B. 368. Hist. Oxon. 3. 654. THREADY BASTARD SPONGE. Dale.

Called by Lemery *Alcyonium molle*. It is light and soft, resembling greasy Wool (*laine grasse*). *Lemery des Drogues.*

The fifth is called

Alcyonium tuberosum, Offic. J. B. 3. 817. Raii Hist. 1. 82. Hist. Oxon. 3. 654. *Alcyonium tuberosum sicut formæ*, Imp. 641. Tourn. Inst. 576. *Alcyonium formæ fructus alius sicut*, C. B. 368. TUBEROSE BASTARD SPONGE. Dale.

It is called by Lemery, *Alcyonium foraminosum*. It is somewhat like a Mushroom, soft to the Touch without Side, of a sharp Taste, but rough within, and porous like the Pumice-stone, without Smell.

There are, besides these, a great many other Kinds.

They contain a great deal of Oil and Salt, some more than others. *Lemery des Drogues.*

PREPARATION OF ALCYONIUM.

To calcine any Species of these *Alcyonia*, put them in an earthen Pot never burnt, with a little Salt, and having well luted the Mouth, set it in the Furnace, and when the Pot is thoroughly baked, take it out, and lay it up for Use; it is washed like the *Cadmia*. *Diosc. Lib. 5. Cap. 136.*

All the *Alcyonia* are detersive and discutive, and of an acrid Quality; but the Milesian, or Vermiform, is the best; wherefore, when it is burnt, it cures the Alopecia, and cleanses the Skin from the Impetigo and Vitiligo. That with a smooth Superficies is the strongest, as not only deterring, but excoriating; but that which is like greasy Wool, is the weakest of all. *Eginet. Lib. 7. Cap. 3.*

The first and second Sort are proper for the Erysipelas, the Ring-Worms, the Itch, the Leprosy, and all other Disorders of the Skin, to take away Freckles from the Face, being externally applied in Powder, or in Decoction.

The third is esteemed good to excite Urine; to expel the Stone of the Kidnies and Bladder; to remove Obstructions of the Spleen, and for the Dropsy; it may be taken in Powder, or in Decoction. Being burnt, it makes the Hair grow, if applied to the Part, mixed with a little Wine.

The fourth is resolvent.

The fifth is proper to clean the Teeth, and if it is calcined with Salt, it makes a Depilatory, or Remedy to destroy Hair. *Lemery des Drogues.*

ALDABARAM. A Name for the Sesamoide Bones of the Great Toe. See ALBADARA. See SESAMOIDÆA.

ALEC, or ALECH. *Vitriol. Rulandus. Johnson.*

ALECHARITH. *Mercury. Johnson.*

ALECTORIA, or LAPIS ALECTORIUS. From *Ἀλεκτρυς*, a Cock. A Gem fabled to be found in the Stomach of a Cock, some say of a Capon, after it is four Years old. It is said to be as clear as Crystal, or Rock-water, and about the Size of a Bean. Many chimerical Virtues are attributed to this Stone, as that it renders the Possessor rich, eloquent, and courageous, that it increases venereal Vigour, and procures Friends. If a Woman possesses it, some Authors assure us, that she must of Necessity be very beautiful and charming in the Eyes of the Men. Pliny says, Milo of Crotona was invincible only because he had this Gem in his Possession, and carried it about him in his Combats. It has also, as it is reported, the Power of quenching Thirst, and mitigating Heat, if held in the Mouth. *Rulandus. Pliny. Gul. Menens.*

ALECTOROLOPHUS. A Plant thus distinguished:

Alectorolophos, Offic. *Crista galli*, Ger. 912. Emac. 1071. Chab. 467. Mer. Pin. 31. Rivin. Irr. M. 92. Dill. Cat. Giff. 80. *Crista galli fœmina*, J. B. 3. 436. Buxb. 88. *Crista galli pratensis humilior, comâ fuscâ*, Rupp. Flor. Jen. 194. *Pedicularis sive Crista galli lutea*, Park. Theat. 719. Raii Hist. 1. 769. Synop. 3. 284. *Pedicularis pratensis lutea, vel Crista galli*, C. B. Pin. 163. Tourn. Inst. 172. Elem. Bot. 141. Boerh. Ind. A. 235. Hist. Oxon. 3. 426. *Pedicularis pratensis lutea, sive Crista galli, Herbariorum*, Merc. Bot. 1. 57. Phyt. Brit. 89. YELLOW RATTLE. Dale.

Alectorolophos, which among us goes by the Name of *Crest* (*Crista*) has Leaves like a Cock's Comb, or Crest, many in Number, a slender Stalk, and black Seed. *Pliny, Lib. 21. Cap. 5.*

Lobel writes, that this Herb is called *Pedicularis* for its poisonous Qualities, and because it infests the Meadows, and is an Enemy to Lice. On the Contrary, Dodonæus calls it *Pedicularis* from its Effect, which is to breed Plenty of Lice upon the Cattle which feed in the Pastures where it grows. But to me the Leaves of this Plant seem, by their Furrows, to be very like the Back of a Louse, and thence perhaps it took its Name.

From a small, white, single Root, that sends forth some collateral Sprays, and is not deep in the Ground, there shoots up a Stalk, for the most Part single, a Foot high, stiff, smooth, square, strait, slender, light, oftentimes variegated with black Spots and Streaks, and towards the Top of a purplish Colour. It is divided into several Branches, which stand opposite, and are encompassed by two Leaves, without Pedicles, wide at the Base, and growing narrower by Degrees, to the very Top, of a Finger's Length, sharp-pointed, indented at the Edges, resembling a Cock's Comb, a remarkable Vein running on the Right and Left, to each Indenture. From the Midst of the Leaves proceed small Branches by Pairs, or two standing opposite. On the Tops of the Stalk and the Branches grow small Flowers close set, in the Form of an Ear, or Spike, and proceeding in like Manner from the Leaves, a single one from each Sinus, with very short Pedicles. The Flower-cup is turgid, compressed, and cut just within the Edge into four acute Segments. The Flowers are monopetalous, yellow, in Shape resembling a Hood, which incloses and hides from View a slender Style, with four Chives, and their Apices. The Flower falling off, the Cup swells into a vastly larger Vesicle, which contains within itself and compresses a large Seed-vessel, divided in the Middle into two Cells, which hold several Seeds closely compressed, and surrounded with a membranaceous Border of a dusky Colour. When the Seed is ripe, the membranous

Cells on a sudden fall asunder and gape wide, and shine when they are dry.

It flowers in June, and the Seed is ripe in a short Time, and then immediately falls off, and the Plant soon after withers away to the very Root.

It grows chiefly in the barren Sort of Pastures, and oftentimes in Plowed Fields, being of no Use, but hurtful in both Situations. *Raii Hist.*

Boiled with husked Beans, and sweetened with Honey, it is good for a Cough. It also cures Dimness of Sight, for which Purpose they cast a whole Seed into the Eye, where it causes no Disorder, but takes off the Mist or Cloud upon itself. It changes Colour, and from Black begins to turn white, then swells, and comes out of itself. *Plin. Lib. 21. Cap. 5.*

Besides the Fore-mentioned, Ray enumerates,

1. *Crista Galli Maf.* J. B. The Male *Crista Galli* of John Bauhin. It differs from the Female in Tallness, growing sometimes to the Height of a Foot and half, has a stronger Stalk, broader Leaves, and much larger Flowers, is whiter at the Tops, and has hairy Vesicles. It grows together with the Female in the Meadows about Geneva.

2. *Crista Galli spicata flore luteo magno Messanenfis.* The spiked *Crista Galli* of Messina, with a large yellow Flower.

3. *Trixago Apula Unicaulis, τριτάχης (Tetrastrachys)* Col. *Crista Galli spicata Flore vario ex albo & purpureo.* An *Antirrhinum Folio serrato*, J. B. The *Apulian Trixago* with a single Stalk, the *Tetrastrachys* of Columna; the spiked *Crista Galli* with the white and purple Flower. *Qu.* Whether the *Antirrhenum*, with a serrated Leaf, of John Bauhin?

4. *Pedicularis pratensis rubra vulgaris*, Park. *Pratensis purpurea*, C. B. *Pedicularis*, Ger. *Pedicularis, quibusdam Crista Galli Flore rubro*, J. B. RED RATTLE.

The Flowers, as in the common *Crista Galli*, spring forth from lax, smooth Vesicles, but not so much compressed, furrowed, and of a deep Green, a little inclining to Red, and are of a red Colour, seldom of a Carnation or White. The upper Lip has a Beak, and conceals within its two Cells four yellow Apices, deeply set with a purplish Style; the lower is deeply cut or jagged into three exactly round Lobes. The Leaves have something resembling *Filipendula*, but are much smaller, and more nicely cut at the Edges, are of a green or light red Colour, and stand on weak, hollow, angulous Stalks, eight or nine Inches high. The Root is somewhat bitterish, white, furrowed, shaped like that of Parsley, scarce as big as one's little Finger, but runs out in small Fibres. From the Top of the Root spring forth broad, thick, sharp-pointed Leaves, serrated round the Edges, from the Middle of which the other Leaves together with the Stalk arise. The first Leaves of the new-sprung Plant are so like the Oak-fern, both in Shape and Incisions, that some would take them for the same. The Seed is of a sooty Colour, and round, contained in large, falcated Vesicles, which run out with a Sort of Beak.

It grows in Meadows, Pastures, and on Heaths, wherever the Ground is moist and boggy, in great Plenty, all over England.

5. *Pedicularis palustris rubra elatior.* An *Pedicularis Campestri prior species Trag.* The red, tall *Pedicularis* of the Marshes. *Qu.* Whether it be the first Species of the Field *Pedicularis* of *Tragus*?

This Herb, if we may believe *Tragus*, eaten by the Cattle, breeds such Swarms of Lice about them, that they are not to be cured without great Trouble and Danger.

6. *Crista Galli montana, Floribus pallidis in spicam congestis.* The *Crista Galli* of the Mountains, with a Spike of pale Flowers.

7. *Pedicularis major Dalechampii*, J. B. *Alpina Filicis Folio major*, C. B. *Major Alpina.* The larger *Pedicularis* of Dalechamps, John Bauhin. The greater Alpine Sort, with the Fern-leaf, Gaspar Bauhin. The greater Alpine Sort of Parkinson.

8. *Filipendula montana altera*, C. B. *Montana mollior altera*, Park. *Alectorolophus* II. Clus. Hist. One of the two Mountain *Filipendulas* of C. B. The softer of the two Mountain Species of Parkinson. The eleventh Species of *Alectorolophus* in Clusius.

9. *Pedicularis Bulbosa*, J. B. *Filipendula montana Flore Pedicularis*, C. B. *Filipendula montana major albida*, Park. *Alectorolophus Alpina major* I. Clus. *Filipendula montana*, Ger. The bulbous *Pedicularis* of J. B. The Mountain *Filipendula*, with the Flower of *Pedicularis*, C. B. The greater white Mountain *Filipendula* of Park. The first Species of the greater Alpine *Alectorolophus* of Clusius. The Mountain *Filipendula* of Gerard.

10. *Pedicularis Alpina lutea*, C. B. Park. *Alpina Flore luteo, Radice nigra*, J. B. The yellow Alpine *Pedicularis* of C. B. and Parkinson. The Alpine *Pedicularis*, with a yellow Flower, and a black Root, of J. B.

11. *Crista Galli umbellata*, C. B. Prod. *Galli lutea umbellata*, Park. The umbelliferous *Crista Galli*, in Gaspar Bauhin's Prodomus. The yellow umbelliferous *Crista Galli* of Parkinson.

12. *Crista Galli angustifolia montana*, C. B. Park. The narrow-leaved Mountain *Crista Galli* of C. Bauhin and Parkinson. *Raii Hist.*

ALEFANTES. Rulandus explains this by *Flas Salis*.

ALEIMMA. "Αλειμμα. An Ointment or Liniment, any unctuous or greasy Topic, that has no Wax in the Composition, to give it a greater Consistence.

ALEION. "Αλειον. An Epithet applied by Hippocrates to Water. It signifies *copious*. *Gorræus*.

ALEIPHA. "Αλειφα. It signifies the Oil of Vegetables, and Fat of Animals. It farther signifies any Sort of medicated Oil, that is, Oil impregnated with aromatic, or fragrant Vegetables, prepared for anointing the Body, and therefore of such a Consistence as is proper for this Purpose; consequently no Wax enters the Composition of an *Aleipha*, nor Powders in Quantities sufficient to render it too thick.

Hippocrates, and all the Antients, abound with Ointments, which they applied not only as Topics to particular Parts, but with a Design of inducing some Alteration in the general Habit, as we may learn from their almost universal Use of them in all Distempers, both acute and chronical. And it is remarkable, that they frequently relaxed the Skin by warm Baths before the Application of their Oils, with a View of gaining a more easy Admission to the Particles of Oil into the Habit.

It is amazing that this Practice which the Antients recommend so strongly, and from which it is evident they found great Advantages, should so far have grown into Disuse, as to be seldom or never taken any Notice of by the Moderns in the Cure of Distempers, though it seems to be of Importance enough to deserve the Regard of every Practitioner. I am afraid this is not the only Instance of a Disadvantage arising from a Dependence on Theory, so far as to proscribe from Practice whatever has not suited with the crude and imperfect Ideas we conceive of the Operation of natural or artificial Bodies, without consulting Experience, the only Thing which should guide us, and which is capable of determining, whether the Theories we form are just, or otherwise.

I think the following Fact will make it highly probable, that Physicians have done extremely wrong, to neglect so much as they have, the general or particular Use of Oils.

The Year before the Viper-catchers discovered that the common Salad Oil was their grand Secret for curing the Bite of a Viper, I employed these People to get a considerable Number of Vipers, in order to make some Experiments. Accordingly a great many Chickens, and some Cats were bitten, some of which were cured, and others suffered to die of their Wounds. Upon dissecting those which died I observed, that the Blood all along the Course of the Vessel which was wounded by the Viper, was coagulated like Jelly, looked black, and stagnated, and the nearer it approached the Heart, the wider was the Coagulation, Lividness, and Stagnation, spread. If then the Poison of a Viper produces deleterious Effects by causing a Stagnation of the Blood, it seems plain, that Oil must cure the Disorders depending upon such a venomous Bite, by resolving the Coagulations already made, and preventing more from being formed.

It is, I confess, a Secret to me, how Oil performs these salutary Resolutions of coagulated Blood, for I can form no satisfactory Idea of its mechanical Way of acting, in order to produce such an Effect. I am sensible it has been said, that the *Saline Spicules of the Viperine Poison are enveloped and blunted by the viscid Particles of Oil*; but this gives me no Satisfaction, for by any Thing which appears, it may or may not be so. But let this Resolution be brought about by any mechanical Means whatever, if Oil applied externally is capable of resolving coagulated Blood, and of hindering the Blood from running into Concretions, in one Instance, it occurs to me, that it may probably have the same Effect in other Cases, where the Blood has a Tendency to stagnate and coagulate. And if so, universal Unctions may, in an inflammatory State of the whole Blood, be of great Use; as particular Unctions may be, when particular Parts are inflamed, that is, where the Blood stagnates, and coagulates. In Confirmation of this, it must be remembered, that Relaxing the Solids is the most effectual Method of removing Inflammations, and that Oil is known to relax in a great Degree.

Hence we may form a Judgment of their Opinions who forbid the Application of Oils to inflammatory Tumors, where the Intention is to discuss, for Fear it should obstruct the Pores; for though the Pores should be obstructed by the Application of Oils, if these Oils resolve and prevent Coagulations, their good Effects will more than over-balance the Mischiefs which may arise from their Obstructing the Pores.

ALELAION. "Αλλαιον. An Application made Use of by Galen in lax Tumors. It consists of Oil beat up with Salt. *Forstius*.

ALEMA. "Αλημα. Boiled Meal.

ALEMBACI. Burnt Lead. *Rulandus*.

ALEMBIC. *Rulandus* explains this *Mercurius*.

ALEMBICUS. The Derivation of this Word is half Arabic, half Greek. It comes from the Word *Alambic*, which is

again derived from *'Alabān* for *'Arabān*, 'to ascend, the Arabic Particle *Al* being added to it. In Latin Seneca calls it, *Miliarium*. In English an *Alembic*, or *Lembic*.

Before the Use of Retorts became so common as they have been for some Years, the most general Way of distilling was to put the Matter to be distilled into a Vessel, called a *Body*, and to fit a Head to it, in order to receive the Vapour, which there condensing into a Liquor, is conveyed by a Canal, called the *Rostrum*, or *Beak*, from the Head into the Receiver. This Head is properly the *Alembic*, and is called *Alembicus Rostratus*, to distinguish it from another Sort of *Alembic*, called *Alembicus Cæcus*, a *blind Alembic*, which is without a Pipe, or Canal, and is destined to receive Substances of a dryer Nature, which are sublimed into it out of the Body. Sometimes also the *Alembic* is perforated at the Top, in order to permit a Part of the Vapour to escape. Thus is *Alembic* properly the Head of a Distilling-vessel, but it is now frequently used to signify the whole Apparatus.

ALEMBROTH. In a Treatise printed in the *Theatrum Chymicum*, Vol. 4. called *Super Tractatulum, Mer Fugi dum bibi*, *Alembroth* is said to be a Chaldee Word, importing *Clavis Artis*, the *Key of Art*. *Rulandus* explains this by *Sal Mercurii*, or *Sal Philosophorum & Artis*. *Castellus* says it is called also *Elembrot*, and *Sal Fusionis*, or *Sal Fixionis*. Some Sorts of this are prepared artificially, but that from which the others seem to have taken their Name is said to be produced naturally in Cyprus, and to be got in the Form and Colour of concremented Blood. *Alembroth desiccatum* is explained by *Rulandus*, *Salt of Tartar*. Hence *Alembroth* should seem to signify a fixed *Alcaline Salt*, either natural, or artificial, which are all very useful in opening the Bodies of Metals, destroying their Sulphurs; and promoting their Separation from the Ore.

ALEMZADAT. *Sal Ammoniac*. *Rulandus*.

ALENON. "Αληνον. *Gorræus* says Aetius calls Oil of Almonds "Αληνον ἰλαιον.

ALEOPHANGINÆ PILULÆ. A Pill directed by the College, thus prepared:

Take of Cinnamon, Cloves, the lesser Cardamoms, Nutmegs, Mace, Calamus Aromaticus, Carpopalsam, or in its Defect Juniper Berries, Schœnanth, yellow Sanders, Galangals, and red Rose-Leaves, each half an Ounce: Let these be grossly powdered, and a Tincture be drawn from them with Spirit of Wine, in a glass Vessel close stopped, enough to strain off three Pints, in which dissolve one Pound of the finest Aloes, and to it add of Mastich and Myrrh in Powder, each half an Ounce; of Saffron, two Drams; of Peruvian Balsam, half a Dram; and reduce the Whole into a due Consistence for Pills, by Evaporation of the superfluous Moisture over an Heat of warm Ashes. *London Dispensatory*.

"The Quantities of some of the Ingredients are somewhat diminished to what they were before. These are the *Pilule Aromaticæ* of Mesue. *Zwelfer* is very large in his Animadversions upon this Composition, which in the *Augustane Dispensatory* a little differs from this, and he is very elaborate in its Correction. He directs to draw the aromatic Part of the Ingredients off by two or three Cohobations with five or six Ounces of Spirit of Wine by a Retort, which is to be saved, and a Decoction made of the Residuum in plain Water, in which the Aloes is to be dissolved and evaporated, and then the Myrrh, Mastich, and Saffron to be put to it, with the aromatic Spirit before drawn; or else to take such Aromatics as have not their essential Oils in the Shops, and manage thus; and put a due Proportion of those essential Oils, which are drawn, to the Whole at last, which seems to be the better Way. This is directed in the *Pharmacopœia Regia* with Hellebore, and intitled, *Pilule Aleopanginæ Capitales & Stomachicæ*, but they are now out of Use." *Quincy's Note*.

This Medicine is imitated from Lampon's Hiera, described by Galen, *L. 8. de Compositione Medicamentorum*, C. 2.

ALEORE. "Αλωρη. From *ἀλω*, to avoid or escape, is used by Hippocrates to signify that Ease which a Person finds from the Abatement or Intermission of any Distemper; "Αλωρη γὰρ νόσου καθύπερθε παύειν μεγάλην ἀλωρην, "The Remission of any Disorder administers great Ease or Relief to the Patient." *Prognostics*, Sect. 1.

ALEOS. "Αλω. Taken as an Adjective, signifies *heaped*, *crowded*, *condensed*, or *continued*, and in this Sense is used by Hippocrates, who, speaking of the Epimenia, says, "Αλλ' αὐτὴς πολὺ καὶ ἰν' ἀλωα. "But if they flow in great Quantities and without Intermission." And a Line or two after; καὶ ἄλλα ἐπιφύσσει, ἄρχοντι ἵσται μέγας αὖ ἔτις ἔχει. "If they come down very fast, the Party will be of a pallid Countenance, so long as she is thus affected." *De Morb. Mulier. L. 1*.

Taken as a Substantive, it is interpreted by Hesychius and others, by the Words *ἔσφα*, *ἔσφα*, *Heat*, *Warmth*; and is derived by them from *ἄλσ*, *Heat*.

ALES. "ἄλς. An Adjective, which like ἄλς, signifies *heaped, condensed, crowded*. In this Sense it is applied by Hippocrates to the Excrements in the Case of Polemarchus's Wife, in the seventh Book of his *Epidemics*.

It also sometimes signifies *contracted*, as, τῶν Μητρῶν ἀλὺν ἐστίων. "The Womb being contracted." *De Morb. Mulier. L. 1.*

The Chymists likewise give this Name to a compound Salt.

ALES CRUDUM, *Crude Ales*, is those Drops which often fall in the Night Time in the Month of June. *Johnson.*

ALESCH. *Alumen plumosum, Plumose Alum.* See **ALUMEN.**

ALETON. "ἄλιον. *Meal*, as Erotian and Hesychius explain it. It seems derived from ἀλῖω, *to grind*, and to import the Meal of any Sort of Corn. This Word is frequently made Use of by Hippocrates. Thus *de Victus Ratione, Lib. 2.* he says, "Ἀλετον καθαρόν πινόμενον ἐν ὕδατι ψυχρῷ. *Pure Meal drank in Water refrigerates.* And a little after he informs us that *Meal, drunk in Milk is more subject to purge than when taken in Water.* In the second Book of *Epidemics* the same Author, speaking of the Oesophagus a little obscurely, says, "Ἀλετον ὡς θερμῶτατον δίδου, καὶ ὅσον ἄκρητον, *give very hot Meal, and unmixed Wine.* The Interpreters translate δίδου by *apponito*, as if Hippocrates directed a Cataplasm of Meal and Wine, which seems a Mistake in this Place, though in others he orders Cataplasms of Meal (ἄλετον) for particular Purposes.

ALEURON, "ἄλευρον, *Meal.* From ἀλῖω, *to grind*. It strictly signifies the *Meal of Wheat*, but is applied by Hippocrates to the *Meal of Lentils*, or of the *Seeds of Darnel*.

ALEXANDER. A Physician of the sixth Century was named *Trallianus*, from *Tralles*, a City of Lydia where he was born. He was equally happy in all the Circumstances of his Birth, for Tralles was famous for the Purity of its Dialect, and his Father Stephanus was by Profession a Physician, whose Tenderness probably enforced his Instructions, and contributed much to the Advancement of his Son's Studies.

Alexander having been some Time taught by his Father, either after his Death, or in Hopes that as every Man of Eminence has some Excellencies peculiar to himself, the Precepts of another Master might afford him new Light, became the Disciple of another Physician, the Father of that Cosmas at whose Request he compiled his Book, and made such Advances in Physic, as procured him when he engaged in Practice the highest Reputation; a Reputation so extensive that not only at Rome, but wherever he travelled, he was consulted and applied to as the greatest Master of his Art, and became known by the Title of **ALEXANDER THE PHYSICIAN.**

His Claim to this honorary Appellation appears to have been founded not upon popular Caprice, or some single Instances of accidental Success, to one or other of which many have been indebted both for their Honours and their Riches, but to extensive Knowledge, and judicious Practice. He is the only Writer of the later Ages who has ventured to form his own Plan, or who can claim the Character of an original Author.

His Method is accurate and perspicuous; he begins with the Distempers of the Head, and descends to all the Parts of the Body in their natural Order. His Account of the Diagnostics is remarkably exact, and his Method of Cure for the most Part rational and salutary.

Without engaging in Disquisitions relating to the Materia Medica, Anatomy, or Surgery, he confines himself to the Description of Diseases, which seems to be his peculiar Excellency, and the Method of Cure, which the Multiplicity of his Practice enabled him to lay down with more Accuracy and Certainty, than those whose Learning was less assisted by Experience. Of many Cases he has left exact Histories, with a regular Detail of the Succession of the Symptoms, and the Application of his Medicines.

It is to be observed to his Honour that his Omission of Surgery was not the Effect of his Ignorance of that Science, but of his Knowledge of the Art of Writing, and his Conviction of the Necessity of one simple uniform Plan. He had observed how much Digressions into remote Enquiries, and a Mixture of different Subjects, had contributed to the Obscurity of Writings intended to promote Science, and therefore proposed, as he informs us, to treat of Fractures and the Diseases of Eyes in separate Books.

His intire Omission of the *Distempers of Women*, is another Instance of the Accuracy of his Method. As those Disorders proceed from the peculiar Structure and Functions of the Parts, he probably imagined, that they had no Place in a general Treatise of Physic, and that by enlarging his Scheme he should only perplex it.

Whether he intended another Treatise on Female Diseases, or whether he lived to execute his other Designs, it is now impossible to discover; but as he wrote the Books which now remain in his old Age, when he could no longer support the Fatigue of Practice, it is more probable that he did not live to finish his Designs than that any of his Works could perish.

He appears through his whole Works to have attended diligently not only the Instructions of his Predecessors, but to the Precepts of far greater Certainty, the Dictates of Reason,

and the Evidence of Experience. He seems to have adventured to use violent Methods in Extremities, yet not wantonly to have sported with Life. He frequently deviates from the received Practice, and perhaps the Introduction of *Steel in Substance* may be justly ascribed to him, since it is mentioned by no earlier Author.

Alexander's Learning and Judgment did not exempt him from some Weaknesses, from which it might be justly expected that either his Reason should have preserved him, or his Experience set him free.

He is strongly inclined to believe whatever has been told of the Efficacy of Medicines, and seems never to suspect either Weakness or Imposture. Nor is the Power of Medicines the only Object of his Credulity, which extends even to the Efficacy of Amulets and Charms, and he mentions some Remedies of this Sort for the Ague, Stone, Gout, and Colic. Those whose Reverence for Antiquity produces in them a Regard even for the Follies and Superstitions of antient Times, may here gratify their Curiosity with a Quotation from Ostances, one of the old Persian Magi.

It is useless either to inquire into the Reasons of this Depravation of *Alexander's* Understanding, or to extenuate his Error, by enumerating the learned and wise Men that have been misled by Superstition. The Causes of Error are innumerable, and therefore cannot be particularly pointed out, and to produce Testimonies in Favour of Folly, is at least to contribute very little to its Extirpation.

It is probable from some of these Charms, which consist of Passages from the Bible that *Alexander* was a Christian; but if this Proof of his Religion be allowed, it evinces likewise, what is no Advancement of his Character, that he had learned his Religion with a very slight Attention.

Whatever might have been his Character as a Man, he has deserved as a Writer much more Applause than he commonly receives, and perhaps he is in Merit the next of the Greek Authors to Aretæus and Hippocrates.

The EDITIONS of **ALEXANDER'S WORKS** are

In Greek, *Parisiis apud Robertum Stephanum, 1543. Fol. cum Castigationibus Jacobi Goupili.*

An old barbarous Latin Translation, in the Opinion of Fabricius, from some Arabic Translation, under the Title of *Alexandri Patris Practica*, of which there have been many Editions, as *Lugduni, 1504. 4to. Papiæ, 1512. 8vo. Venetiis, 1522. Fol.*

Albanus Torinus afterwards put this into better Latin, but this was not a Translation from the Greek, but a Metaphrasis of the barbarous Translation above-mentioned. It was published, *Basil. apud Henricum Petri, 1533. Fol. and 1541. Fol.*

Johannes Guinterius Andernacus translated the Greek into Latin. Of this Translation there have been the following Editions:

Argentorati apud Remigium Guidonem, 1549. 8vo.

Lugduni apud Antonium Vincentium, 1560. 12mo.

Lugduni, 1575, cum Johannis Molinæi Annotationibus.

This Translation is also amongst the *Medicæ Artis Principes*, published by Stevens.

Many detached Pieces have also been published amongst Collections of Authors upon different Medicinal Subjects.

There is a small Treatise, ἡγεῖα ἐν ὕδατι, of Worms, which is ascribed to *Alexander* by Mercurialis, and is addressed by *Alexander* to his Friend Theodorus. This is published amongst some of the Works of Mercurialis, and is inserted by Fabricius in his *Bibliotheca Græca*, in Greek and Latin, at the End of his Article of *Alexander*. It is not printed amongst his other Works.

There were many Physicians of this Name before *Alexander Trallianus*, but we know of nothing remarkable relating to them.

ALEXANDRIA. A Name of the Daphne (*Bay-tree*) it is hot, acrid, and bitterish; whence it provokes Urine and the Menfes. The Daphnoides (*Periwinkle*) has the same Qualities, and so has the Chamædaphne (*Spurge-laurel*) which is also eaten. *P. Aeginet. L. 7. C. 3.*

ALEXANDRI ANTIDOTUS AUREA. *Alexander's golden Antidote*, excellent for Defluxions from the Head, for it immediately alleviates the Pain of it, stops Tears from the Eyes, and cures the Tooth-ach, not only drank but laid on the Place. It perfectly relieves those who are taken with a sudden Fit of an Epilepsy, composes the extravagant Gestures of mad People, and is admirable for all Kinds of Pain in the Head. It is good for coughing, consumptive, cardiac, and asthmatic Patients. It wonderfully relieves such as vomit Blood, from some inward Erosion, is good for the Palsy, and Disorders of the Viscera and Sides, breaks the Stone, cures the Strangury and Difficulty of Urine, and all Disorders of the Uterus; gives Relief in Quotidian, Tertian, and Quartan Agues, if taken before the Fit. Whoever shall accustom himself to this Antidote, will never be subject to the Apoplexy nor Colic. It is prepared in this Manner:

Take

Take of Afarabacca, Henbane, Carpobalsamum, each two Drams and a half; of Cloves, Opium, Myrrh, Cyperus, each two Drams; of Opobalsamum, Indian Leaf, Cinnamon, Zedoary, Ginger, Costus, Coral, Cassia, Euphorbium, Gum Tragacanth, Frankincense, Styrax Calamita, Celtic Nard, Spignel, Hartwort, Mustard, Saxifrage, Dill, Anise, each one Dram; of Xylaloes, Rheum Ponticum, Aipta Moschata, Castor, Spikenard, Galangals, Opoponax, Anacardium, Mastich, crude Sulphur, Peony, Eringo, Pulp of Dates, red and white Hermodactyls, Roses, Thyme, Acorus, Penroyal, Gentian, the Bark of the Root of Mandrake, Germander, Valerian, Bishops Weed, Bay-Berries, long and white Pepper, Xylobalsamum, Carnabadium (that is, according to the Commentator, Ethiopian Cummin) Macedonian Parsley-seeds, Lovage, the Seeds of Rue, and Sinon (a Sort of wild Parsley, according to the Commentator) of each a Dram and half; of pure Gold, pure Silver, Pearls not perforated, the Blatta Byzantina, the Bone of the Stag's Heart, of each the Quantity of fourteen Grains of Wheat; of Sapphire, Emerald, and Jasper Stones, each one Dram; of Hasle-nut, two Drams; of Pelitory of Spain, Shavings of Ivory, Calamus odoratus, each the Quantity of twenty-nine Grains of Wheat; of Honey or Sugar a sufficient Quantity. The Dose is the Quantity of an Hasle-nut. *Myrcpsus, Sect. 1. Cap. 1.*

ALEXANDRI REGIS COLLYRIUM SICCUUM, *King Alexander's dry Medicine for the Eyes*, was composed of Saffron, Celtic Nard, and Terra Ampelitis (a Sort of bituminous Coal). *Aetius, Tetr. 2. C. 39.*

ALEXANDRINUM EMPLASTRUM VIRIDE. A Plaster described by Celsus, *L. 5. C. 19.* and by him recommended as a Drawer.

Take of Plumose Alum, one Ounce twenty Grains; Sal Ammoniac, seven Drams seventeen Grains and a half; Squama Aëris, two Ounces forty Grains; of Myrrh and Frankincense, each two Ounces, two Drams, forty-five Grains; of Wax, one Pound, seven Ounces, four Drams, fifteen Grains; of Colophonian or Pine-resin, two Pounds, five Drams, fifty-five Grains; of Oil, half a Pint; of Vinegar, a Pint.

ALEXANTHI, or ALTINGAT. Rulandus explains this *Flos Aëris, Flowers of Copper*, perhaps the Rust.

ALEXASTHÆ. Ἀλεξασθαι. Erotian and Hesychius explain it by the Word βοηθῆσαι, to bring Aid, repel, succour; and thus it is used by Hippocrates, αὐτὸν οὖν τοῖσιν ἰατροδικύμασι τοῦτοισιν ἀλεξασθαι, by this Regimen therefore such must be relieved. *De Salub. Viët. Rat.*

ALEXICACON. An Amulet, said to be powerful against Poisons. From ἀλεῖω, to repel, and κακόν, Evil. *Blancard.*

ALEXION. This Physician lived in the Time of Cicero and Atticus, and had a great Share in the Friendship of both those illustrious Persons. He died before Cicero, and was very much lamented by him, as appears from what Cicero himself writes to Atticus on that Occasion: "O factum malè de Alexione! incredibile est quantà me molestià affecerit; nec mehercule ex ea parte maximè quod plerique mecum; ad quem igitur te Medicum conferes? Quid mihi jam Medico? Aut si opus est, tanta inopia est? Amorem erga me, humanitatem, suavitatemque desidero; etiam illud, quid est quod non pertimescendum sit, cum hominem temperantem, summum Medicum, tantus improviso morbus oppresserit? Sed ad hæc omnia una consolatatio est, quod ea conditione nati sumus, ut nihil quod homini accidere possit recusare debeamus."—*Epistol. ad Attic. Lib. 15. Cap. 1.*—What a Misfortune is the Death of Alexion! I cannot express how deeply I am affected by it; not for that Reason which chiefly afflicts others, their being at a Loss what Physician they shall apply themselves to. For what Occasion have I for a Physician? Or if I had, is there so great a Scarcity of them; No,—what I lament is the warm and sincere Friend, the generous, humane Man, and the agreeable Companion. Besides, what has not one to fear, when we see it in the Power of a Disease to snatch away, so suddenly, a Man of his Temperance and consummate Skill in Physic? But for all these Things we have only one Consolation, namely, that we are born into the World on this Condition, that we submit to all those Accidents to which human Nature is subject."—What Cicero says here gives us a very advantageous Idea of this Physician. It is a Loss to the World that we have no farther Particulars concerning him.

ALEXIPHARMACA. From ἀλεῖω, to repel or drive away, and φάρμακον, properly a Poison. *Alexipharmics.* An *Alexipharmic* seems originally to have signified a Remedy to expel, or prevent the ill Effects of Poisons taken internally, and this is Galen's Explanation. But since some amongst the Moderns had conjured up a chimerical Poison, in order to inflame or otherwise affect the imaginary animal Spirits in acute Distempers,

Alexipharmics have been understood to mean Remedies adapted to expel this Poison by the cutaneous Pores, in the Form of Sweat. Hence it appears, that *Alexipharmics* mean just the same as *Sudorifics*. I am persuaded that no Theory was ever introduced into Medicine without very ill Effects upon Practice; but that which paved the Way for *Alexipharmics* has exerted extraordinary Heroisms, and made uncommon Havock amongst Mankind.

Hippocrates in his Treatise *de Ratione Viëtus in Acutis*, has the following Passage: *Whoever in the Beginning of an inflammatory Disease attempts the Cure by Cathartics, does not in the least diminish the Tension and Inflammation of the Part affected; for the Distemper in this State of Crudity, will not yield to such Medicines; on the contrary, this Method of Treatment liquefies and wastes the sound Parts, which would otherwise resist the Distemper; and when the Body is in this Manner weakened, the Disease gets Ground, till at last it becomes incurable.* Though this is said with a great deal of Justness and Propriety, I am persuaded it may with stronger Reason be applied to *Sudorifics*, that is, to *Alexipharmics*, which frequently do a great deal of Mischief. And indeed there is nothing in which the lower Class of Practitioners in Physic make more fatal Errors, than in the Use of *Alexipharmics*, which I have frequently known exhibited to young People of plethoric Habits, in the very Beginning of Fevers, and even without previous Evacuations.

About the Year 1723, 1724, or 1725, a Fever appeared with uncommon Violence, and was more universal than any I have ever known, and by this great Numbers of working People perished, infomuch that in many Countries scarcely enough were left to gather in the Fruits of the Earth; and this Sort of Fever continued for many Years after. In this Disorder it was remarkable, that a warm Regimen, or hot Medicines, seldom or never failed to render the Fever continual, and keep it so, bringing on Deliria, and all Symptoms of Malignity; whereas a cool Regimen, with Evacuations by Bleeding, and Purging with Caution, and an intire Abstinence from hot Medicines, almost always brought the Fever to a regular Intermission, and then the Bark effectually took it off. As I had an Opportunity of seeing a great Number of Patients under this Fever, I was abundantly convinced, that more died of *Alexipharmics* than of the Distemper itself.

But that I may not appear singular with Respect to this Sort of Medicine, I shall give the Opinion of the illustrious Hestman upon this Subject, who having just before mentioned Cathartics goes on thus:

There is another Set of Evacuants which carry off the more subtle Parts of the morbid Matter, by the Pores of the Skin, in a plentiful, less offensive, gentle, and more imperceptible Manner. The Remedies most conducive to this are called *Sudorifics*, and by the Greeks *Hydratics*; by whose Operation a sensible Moisture is perspired through the cutaneous Glands. Of the vegetable Kind the most efficacious, for this Purpose, are the Roots of a very acrid, penetrating, oily Taste, as those of Angelica, the different Species of Master-wort, Butter-burr, Elecampane, Lovage, Swallow-wort, Valerian, Contrayerva, Virginia Snake-root, Lignum Guajacum, and Sassafras, with their Barks. In the mineral Kingdom crude Antimony, Regulus Antimonii medicinalis, volatile Tincture of Sulphur, prepared of Quick-lime, Sal Ammoniac and Sulphur, corrected and fixed Sulphur of Antimony, and also the Mixture simplex. Likewise Venice Treacle, its Essence, Spirit, and Water; all Spirits and volatile Salts prepared from the Parts of Animals, particularly Harts-horn, Ivory, and Earth-worms, Spiritus Buffii, Tartar, Silk, Soot, the Essences of Woods, and the distilled fœtid Oils, as fœtid Oil of Harts-horn dissolved in Spirit of Wine.

These nobler Medicines; of the sudorific Kind, owe the Virtue of their Operation to the Power they possess of increasing the Systaltic Motion of the Heart, and the Elasticity of the Arteries, as to the Number and Force of their Vibrations, by which Means, a greater Velocity being added to the Circulation, they protrude the perspirable Matter through the outward and porous Substance of the Skin. This they perform either by a subtle, acrid, hot Oil, as the Roots above-mentioned, which are also called *Alexipharmics*; or by a volatile empyreumatic Salt of an igneous Nature, such as are all the Spirits; volatile Salts, and Oils from Animals; or by an acrid, resinous Salt, more or less fixed, as the Root of white Burnet, Guajacum and its Bark, Contrayerva, Virginia Snake-root; or lastly, they act, and that very powerfully, by Means of a very fine mineral Salt and Sulphur, by which they rouse the nervous Fibres to a violent Motion; and for this Purpose a very small Dose is sufficient. Thus a single Grain of our diaphoretic Mercury, or two or three Grains of fixed Sulphur of Antimony will raise a Sweat over every Part of the Body. A Decoction of the Woods, or a Decoction of crude Antimony with the Woods, also Regulus Antimonii medicinalis have the same Effect.

I. These strong Sudorifics, though given in a larger Quantity, will by no Means raise a Sweat, unless the Body is prepar-

ed for it ; that is, unless the porous Substance of the Skin be sufficiently open and lax, or unless the Blood be enough diluted. Wherefore if any one, in the Cure of a Disease, thinks Sweating required, it will be necessary for him to give the above-mentioned Sudorifics with a sufficient Quantity of some Liquid to dilute the Blood ; for Example, a weak Tea, or a Decoction of Barley ; and that the Pores of the Skin may obtain a due Relaxation, the Person to be sweated should be put into a warm Bed, or hot Stove, or into a Bath, especially a Vapour-bath, that so a plentiful Sweat may be excited.

II. These very active Sudorifics rarely find a Place in Medicine, and are not to be administered except with singular Caution. For a Sweat never arises in a healthful and natural State, unless the Blood is put into an extraordinary Motion ; nor when this happens, is it a Sign of Health, like insensible Perspiration, the Matter of which is void of Acrimony, watery, of Kin to the nutritious Juices, and almost without either Taste or Smell, and differs very much from Sweat, which is of a salt Taste, a foetid Smell, and approaches the Nature of Urine. Besides, these Sudorifics excite a great Commotion, and notable Orgasm ; for they act not with Moderation but Rapidity, whence it comes to pass, that in Bodies full of Blood, or contaminated Serum, by impelling the Fluids with too much Violence to the small and narrow Vessels, they bring on dangerous and acute Symptoms, occasioned by the Inflammation and Redundance of Humours. But they are most hurtful where the Primæ Viæ are obstructed by a Load of vitious Humours, where the Body is costive, and when they are administered immediately after a violent Fit of Anger. By this pernicious Practice, I have known them more than once occasion arthritic and rheumatic Pains, slow and hectic Fevers, which have proved of long Continuance, and been attended with imminent Danger.

III. In all acute Diseases, as inflammatory and scarlet Fevers, Sudorifics are to be intirely banished, or, at least, to be administered very seldom, and that with the greatest Caution. For I have often observed that the promiscuous Use of Alexipharmics, as the Custom too generally prevails, has only served to increase Heat, Anxiety, and the Violence of the Symptoms. These Remedies are called *Alexipharmics*, as are also all those of the theriacal Kind, from a Virtue attributed to them of resisting Poisons and malignant Humours, for which Reason they are highly extolled by Physicians in the Plague, and other contagious Distempers. But the Truth is, they are much more powerful for the Prevention than Cure of these Diseases, especially when an epidemical and malignant Distemper owes its Birth to an over-wet, foggy, cloudy Season, which has been long destitute of the East and North Winds ; or to a Deluge or Inundation of Waters. For in this Case it will be much better and safer to give them in Wine-vinegar diluted with Water, or to infuse the alexiphoric Roots in Vinegar, which by this Means being impregnated with their alexipharmic Virtue, two or three Spoonfuls may be given in any convenient aqueous Vehicle. The Aqua prophylactica sylviæ is also of admirable Use at a Time when such Distempers are abroad.

It is to be remarked, That the East and North Winds, by bringing with them plentifully an Acid, render the Air more cool and active, and destroy Contagion. See ARR.

IV. But Sweating is very serviceable in those Diseases which proceed from external Cold, and obstructed Perspiration, as in Catarrhs, Rheumatisms, Fluxes, Stoppages of the Head, Coughs, and glandular Tumors : Also when Danger is apprehended from a Person's having drank a large Quantity of any cold Liquor, when very hot, or in a Sweat. But then they should be administered in the Beginning of these Disorders, and in such Cases Bezoardic Tincture, or Spiritus Bezoardicus Rustii, mixed with our anodyne Liquor is of excellent Use. Nor is a Sudorific of less Service in the Beginning of any infectious Distemper, taken immediately after a mild Emetic ; and for this Purpose may be used Bezoardic Vinegar, or the Bezoardic Powder, with a little Camphire, which is the chief of *Alexipharmics*.

V. Likewise in those Diseases which have their Seat in the porous and fibrous Substance of the Skin, and consist of an acrid viscid Matter, which destroys and deforms its Texture, as an inveterate Itch, the Ring-worm, Leprosy, and venereal Pustules and Ulcers, a plentiful Sweat may be excited to great Advantage, with proper Remedies. The same may be also practised in arthritic and rheumatic Pains in any Part of the Body, for by this Means the acrid, viscid, and stagnating Serum, which adheres to the nervous Membranes, is thrown off and discharged. For the same Reason in all those Diseases which are called *cold*, as in Dropsies of every Kind, the cold Scurvy, Pox, settled Gout, Sciatica, Palsy, and others of the same Nature, Sudorifics are of great Efficacy ; because they promote and restore the Elasticity and contractile Power of the Heart and Vessels, which in Disorders of this Kind are very much depressed, and increase the Circulation of the Blood, for the better Separation of the morbid Matter. But this Course must be persisted in for some Time.

VI. Sudorifics always operate best, when taken in a sufficient Quantity of some warm Liquid. Celsus, in the sixth Chapter

of his third Book, commends warm Water for this Purpose : His Words are these, *Si Nota est Sudoris venturi, tum demum calidam Aquam Potui dare oportet, cujus salubris Effectus est, si Sudorem per omnia Membra effundit.* ' When you perceive the ' Sweat coming you should give warm Water to drink, which ' hath a most healthful Effect, if it excite a Sweat over the ' whole Body.' It is notorious that this is procured in the most plentiful Manner by a Decoction of the Woods, whose Use in venereal Cases, and other cold Distempers, cannot be enough commended. I have also known several Country People happily cured of Intermitting Fevers, and Tertian and Quartan Agues, by taking a few Hours before the Fit a Vomit, and immediately after it a Sudorific (observing a Regimen) of Rob of Elder, Salt of Tartar, and a few Corns of Pepper, mixed together in a Spoonful or two of Brandy.

In the Passage above quoted Celsus only advises to promote a Sweat when the Marks of one approaching are evident.

Diaphoretics are inferior in their Power of acting to Sudorifics, but much superior to them in their healthful Qualities, which gently increase and promote Perspiration. Of these the chief in the vegetable Kingdom, are the Roots of China, Sarsaparilla, the Carline Thistle, and Gentian. Of Herbs, the holy Thistle intire, its Seed and all the Preparations from it, whether Essences, Waters, Extracts, or Salts ; Water Germander, the Elder, and Dwarf-Elder, with its Flowers, Rob, and Water ; also Fumitory, Scabious, Saffron, the Flowers of Marygold, and Opium. In the animal Kingdom, all Bones, Horns and Teeth of Animals, whether rasped, or burnt to Ashes and chymically prepared, especially those belonging to the Stag ; the Stones, Shells, and Claws of Crabs. Of Earths, all sealed Earths, and different Kinds of Marle, and the Bolus Fabrilis. Of Salts, the Salts of Plants procured by Burning, and Nitre. Of precious and exotic Stones, the Petra di Porco, and the Eastern and Western Bezoar Stone. Of Minerals and chymical Preparations, the Flowers and Milk of Sulphur, Cinabar, native, common, and that of Antimony ; diaphoretic Antimony, Cerus of Antimony, Magistery of Antimony, the Bezoardic Mineral, Tinctura Temperata of Antimony, prepared from the Regulus and Salt of Tartar, and Poterius's Antihædic. Of Compounds, Goa Stone, which is compounded of oriental Bezoar, Tragacanth, and Ambergrise ; Sennertus's Bezoardic Powder, the English and Pannonian red Powder, Dornerellius's Cordial, our mineral anodyne Liquor, Wine Vinegar, or distilled Vinegar, with Elder Flowers, or Crab Stones infused in it ; our Pulvis Polychrestus Diaphoreticus, Theriaca Cœlestis, Liquid Laudanum, and Wildegansius's Pills.

The Operation of Diaphoretics is manifold and various ; for either they act in a privative Manner, by absorbing and changing the Acid in the Primæ Viæ, which, carried into the Blood, depresses its Spirituosity, Fluidity, and intestine Motion, of which Kind are all the Earths of an alkaline Nature : Or by imbibing the superfluous Moisture, and bracing the relaxed Fibres, as the sealed Earths, Boles and Marles ; also Bones and Horns, both those burnt and those chymically prepared, and the Unicorn Stone : Or by relaxing and mollifying, in Diseases of the Skin, its contracted Superficies by their mild anodyne and vaporous Sulphur, as the different Species of Elder, especially the Flowers, Saffron and its Extract, the Flowers of red Poppy or Corn-Rose, our anodyne, mineral Liquor, the Emulsions of Poppy-seed, corrected Opiates, particularly the Theriaca Cœlestis, Wildegansius's Pills, and Liquid Laudanum prepared as directed by Sydenham : Or by composing and quieting the too violent intestine Motion of the Blood, as the Remedies of the nitrous Kind, corrected by being joined with the more fixed Diaphoretics ; also Spirit of Nitre dulcified, Emulsions of the four greater cold Seeds, and the milder Acids, as Juice of Lemons and Vinegar : Or lastly in a positive Manner, by gently stimulating the Fibres and languid Vessels, of which Sort are the holy Thistle, Water Germander, Fumitory, China, Sarsaparilla, lesser Centory, Scabious, Carline Thistle, and Gentian.

I. Now as this Evacuation of the finer Parts of the morbid Matter through the Pores of the Skin, by insensible Transpiration, is of all others the most healthful ; and as an Obstruction thereof is the Occasion of many Maladies ; so the Use of Diaphoretics, which promote this cutaneous Excretion, is certainly very great, universal, and almost infallible, in almost all Distempers, even those which, from their present Symptoms, we are not thoroughly acquainted with ; so that a Physician can by no Means be without them. For an increased Circulation of the Blood, and an enlarged Perspiration, are the grand Mediums and Instruments of Nature, by which the morbid Matter in any Disease is corrected, digested, resolved, and at last thrown off, and the Distemper cured without Danger. Particularly in all acute Diseases, as Fevers and Inflammations of all Kinds, these alone given in some convenient Vehicle, in small Doses, and continued for some Time, answer every Intention of Cure, and are in Truth the best Discutients and Purifiers of the Mass of Blood.

II. Because excessive Heat, especially in Summer, and in choleric and bilious Constitutions, also in choleric and bilious Fevers, dries too much, consumes Moisture, and hinders Perspiration, acidulated and nitrous Remedies, and particularly Crabs-

eyes

eyes with Nitre, given in a Julap of diaphoretic Waters and Syrup of Citron-juice, by moderating the too great Heat, and procuring a plentiful Diaphoresis, give great Relief to the Patient.

III. When through the Violence of any Disorder the Skin is dry and without Moisture, and its Pores become narrow and contracted, it is always best to join some mild Anodynes and Antispasmodics to the Diaphoretics; and in this Case our anodyne mineral Liquor, mixed to the Quantity of three Parts with one Part of Spiritus Bezoardicus Buffi, is of admirable Virtue; as is also the fixed diaphoretic Powder, a little nitrous, with Cinnabar, and one or two Grains of Wildegansius's Pill, as is witnessed in many Instances by Ettmuller, in his Dissertation on the diaphoretic Virtue of Opium.

IV. Diaphoretic Powders have this peculiar Property, that they not only promote Perspiration, but also often exert a loosening and remarkably diuretic Virtue. This I can affirm from manifold Experience, that our bezoardic polychrest Powder, being taken in the Morning or Afternoon, if it meets with acid Juices in the Primæ Viæ, will give four or five Stools, which in old Men and Hypochondriacs is attended with great Advantage. The same being given at going to Bed, if the Skin is not properly disposed to admit of a Sweat, as in the Beginning of Catarrhs, will work off by a large Discharge of Urine; but where the Skin is sufficiently disposed to a Diaphoresis, a plentiful Sweat frequently ensues.

V. In acute Diseases and Fevers, where but little Acid is lodged in the Primæ Viæ, it will be safer and of more Service to give the fixed and earthy Diaphoretics in a small Quantity, and well mixed with Syrup of Citron-juice, or Wine Vinegar, because Vinegar alone will not coagulate with Water, but often resolves and throws off the stagnating Blood, especially if joined with Diaphoretics. *Frideric. Hoffman. Medicina Rationalis Systematica.*

Thus Hoffman very justly distinguishes betwixt Sudorifics or Alexipharmics, and Diaphoretics; Alexipharmics being such Medicines as excite a great Degree of Motion and Heat, and a considerable Orgasm in the Body, which tend to extort profuse Sweats, and do a disagreeable, and prejudicial Violence to Nature, who is by this Means deprived of a great deal of the more fluid Part of the Blood, which otherwise might be of great Use in preserving the whole Mass in a State of Fluidity, in promoting the Solution of the stagnating, and obstructing Humours, and assisting in the Expulsion of the morbid Matter out of the Limits of the Circulation; whereas Diaphoretics are Medicines endued with a gently stimulating, and perhaps resolute Virtue, by which they aid and assist Nature in carrying on her own salutary Purposes, without any Tendency to divert her from her Method, or to do any Violence.

In order to account for the very sudden Effects which some Alexipharmics have in raising a Sweat, before they can possibly be supposed to enter into the Blood, we must reflect, that Alexipharmics consist of very penetrating and stimulating Particles. Now when these act upon the nervous Coats of the Stomach, the Stimulation thereby caused derives a greater Influx of the nervous Fluid (if any such there be) into these Nerves, and all the correspondent Branches of Nerves proceeding from the same Trunk. Now the Stomach receives a great many Nerves from the descending Trunks of the Par Vagus, and some Branches immediately from the Plexus Cardiacus, formed by the same Par Vagus, and situated a little above the Heart, from which Plexus, the Heart is furnished with Nerves. Whatever therefore stimulates the Nerves of the Stomach, must also affect the Nerves of the Heart, the Consequence of which is, that the Force and Frequency of the Contractions of the Heart must be increased, and of Course the general Heat of the Fluids circulating by Means of such Contraction, because the Motion and Friction is greater than before. The Blood thus circulating with an increased Velocity, must be impelled more frequently and with more Force towards the Surface of the Skin, and hence an increased Evacuation by the cutaneous Pores. I am far from being certain that what is generally understood by the *Animal Spirits*, or nervous Fluid, really exist in Nature, but let the immediate Vehicles of Sensation and Motion be whatever they will, what I have said with Respect to the Stimulation of the Nerves must hold true.

ALEXIPPUS, was one of the Physicians of Alexander the Great, who, as Plutarch informs us, wrote him a Letter of Thanks, on Account of his having recovered Peucestas from a dangerous Disease.

ALEXIPYRETICUM, ALEXIPYRETOS, and ALEXIPYRETUM. From ἀλίζω, to drive away, and πυρετός, a Fever. It signifies any Remedy for a Fever.

ALEXIR. A Medicine chymically prepared; an *Elixir*. *Rulandus. Johnson.*

ALEXITERIA. Ἀλεξίτηρια, *Alexiterials*. In Hippocrates, and indeed strictly (Ἀλεξίτηρια) *Alexiteria* signifies nothing more than *Helps*, or *Remedies*. Thus in the first Book on the Diseases of Women, the Author having mentioned Asses Milk and Wine as proper in a particular State of the Uterus, add

καὶ τὰ ἄλλα ἀλεξίτηρια; and other Remedies. Thus also in his Treatise on Regimen in acute Diseases, having just before taken Notice of some bad Symptoms arising from the continual Use of Hydromel in acute Cases, he says, ἀλεξίτηρια δὲ τούτων περιγράφεται, *The Remedies for these shall be specified.*

But later Writers applied *Alexiteria* to external Remedies against the Bites of venomous Animals, and even to Amulets and Charms, directed to be wore with a View of preventing the ill Consequences of Poisons, Incantations, and Fascination.

It is said by some Authors, that *Alexiterials* differ from *Alexipharmics* thus: *Alexipharmics* signify Medicines against Poisons taken internally; whereas *Alexiterials* are Remedies against the Poisons of venomous Animals inflicted externally. Hence the Word has been said to be derived from ἀλίζω, to drive away, or repel; and θήρ, a wild, or poisonous Beast; but this seems without any Foundation, for Ἀλεξίτηρια seems to import exactly the same as βοηθήματα, *Helps, Aids, Remedies*, as ἀνδρῶν is in Signification the same as βοηθῶναι, to help, aid, or assist. And thus both are explained by Galen.

Our College Dispensatory give a Water under the Title of *Alexiterial Milk-Water*, and some Troches under the Name of *Trochisci Alexiterii, Alexiterial Troches*.

AQUA LACTIS ALEXITERIA, *Alexiterial Milk-Water*:

Take of the Leaves of Meadow-sweet, Carduus Benedictus, and Goats-rue, each six Handfuls; of Mint and Wormwood, each five Handfuls; of Rue, three Handfuls; of Angelica, two Handfuls. Pour three Gallons of new Milk upon the Ingredients when bruised, and distil in a Bath or a Sand-heat.

TROCHISCI ALEXITERII, *Alexiterial Troches*:

Take of Zedoary-root, of the Virginian Snake-root, and of the Powder of Crab's Claws, each one Dram and half; of the outer Bark of Citrons dried, and of Angelica-seeds, each one Dram; of Armenian Bole, half a Dram; and of white Sugar-candy the Weight of the Whole. Let them be all made into a fine Powder, and then, with a sufficient Quantity of the Mucilage of Gum Tragacanth made in Treacle-water, work them into a Paste fit for Troches.

These are transcribed into the first Edition of the College Dispensatory from Renodæus, much in the same Manner as Schroder hath also got them in his *Pharmacopæia Medico-Chymica*, and it was continued down to the last of the College without the Emendations here, though much corrected to what it was before. The Virginian Snake-root here is intirely new, and many Things are left out which not only made the Medicine too nauseous for this Form, especially the Gentian, but also lessened the Proportions of the most efficacious Ingredients, and frustrated the main Intention, which seems originally to have been contrived as a Preservative against pestilential Contagions. *Quincy's London Dispensatory.*

ALEZARAM. (Lotura Plumbi) *The Washing of Lead*; *Rulandus. Johnson.*

ALFACTA. *Distillation. Rulandus. Johnson.*

ALFADIDAM. *The Scoria of Gold, Iron, or Copper. It also signifies Burnt Copper. Castellus from Rulandus and Johnson.*

ALFASIT, or ALUASIT (Testa) *an earthen Pot. Rulandus.*

ALFATIDA. *Burnt Copper, or (Laminatura) the Lamina or Scales of Copper. Rulandus. Johnson.*

ALFATIDE. *Sal Ammoniac. Rulandus.*

ALFESERA, or ALPHESERA, is the Name of a Confection described by Mesue, and said to be good in spasmodic Affections of the Nerves. From the Arabic Particle Al, and the Word Fesera, or Phefera, the Root of the Vitis Alba. *Castellus.*

ALFOI. *Sal Ammoniac. Castellus from Rulandus.*

ALFUSA: *Tutty. Castellus from Rulandus.*

ALGA. A Sea-plant thus named by Authors:

Πικρὸν θαλάσσιον, *Discor. Alga*, Offic. GRASS WRACK. Ger. Emac. 1569. *Alga*, & *Ulva*, Chab. 569. *Alga anguifolia vitrariorum*, C. B. 364. J. B. 3. 794. Rai Hist. 1. 75. *Fucus marinus*, sive *Alga marina graminea*, WRACK, OR SEA WERDE, OR GRASS, Park. 1291. Hist. Oxon. 3. 647. Rai Synop. 7. GRASS WRACK. *Dale.*

There are three Kinds of *Alga*; one broad, another oblong and reddish, and the third white, which grows in Crete along the Sea-shore, bears a good Flower, and is not subject to Putrefaction.

All the Kinds are of a cooling Nature, and effectual in Cataplasms, for the Gout, and Inflammations. But they are to be used while they are moist. Nicander gives the red Sort a Place amongst the Alexipharmics, and some have taken it for the Fucus which Women use to give themselves a false Colour, but this last is a Root of that Name which serves them for the said Purpose. *Discor. L. 4. C. 100. copied by Orisius Med. Coll. Lib. 12.*

Alga, Sea-wrack, called also *Βρύον θαλάσσιον*, *Sea Moss*, and *Φύκος*, is compounded of a terrestrious and aqueous Substance, both cold, for it is astringent to the Taste, and refrigerating to the Touch. *Orib. Med. Col. Lib. 15. Cap. 1.*

Taken green and wet just out of the Sea, it is an extraordinary Cooler, with a moderate Astringency. *Orib. de Virt. Simpl. L. 2. C. 1. Aetius, Tetr. 1. Serm. 1.*

Alga is a Kind of Plant which grows in the Water. There are several Kinds of it. The most Part shoot out their Leaves like Grass, the rest like Hairs.

The common *Alga* is a Sea Plant, its Leaves are about a Foot and half long, smooth, soft, and easy to break, sometimes white, sometimes red, or of an obscure green, narrow, but some narrower than others. This Plant grows in great Quantities along the Shore of the Mediterranean Sea, and elsewhere. The Countrymen dry it, and it serves for Fodder for their Oxen and other Cattle, and obtain from it a very good Manure for the Earth.

They also make Glafs of it as with the Kali, for it contains a great Deal of Salt.

It is aperitive, vulnerary, and desiccative, it is also esteemed good to kill Lice and Flees. *Lemery de Dragues.*

ALGALL. Nitre. *Rulandus. Johnson.*

ALGAMET. Coals. *Rulandus. Johnson.*

ALGARAB, or GARAB. *An Anchilops. Avicenna. Serapier. Tom. 2. See ANCHILOPS.*

ALGAROT. See ALGEROTH.

ALGATIA. (*Cibetta*) Civet. *Johnson.*

ALGEDO. A Name of an Accident which sometimes happens in a Gonorrhœa, of which Cockburn gives the following Account:

Amongst the various Accidents that happen in the Course of a Gonorrhœa, none is attended with more violent Pain, and more dire Consequences, than a Running stopping soon after it appears, which we may properly call the *Algedo*; yet I do not find that any Author has offered any Observation of this Kind to the World; which Neglect very much arraigns their Sincerity, or the Accurateness, at least, they pretend to, in relating the various Appearances that occur in the Practice of a Gonorrhœa. Musitanus alone suggests the Symptom, but injudiciously places it among those that precede a Caruncle. For he alleges that we may apprehend a growing Caruncle, *Ex progressu fœdi Gonorrhœæ, qui modo Stranguriam, modo Dysuriam, jam Isteriam infert.* But I have observed, that if the Running does not proceed after the common Manner already related, but continues to be in a small Quantity, as it always shews itself at first; or if it stops without any sensible and obvious Cause of an improper Administration; in that Case there is often an intense Inflammation on the Glands, and an insufferable Pain striking into the Anus, sometimes into the Testicles, without their being in the least swelled, and most commonly into the Bladder, which last Pain is always attended with a frequent Desire of making Water; but it is made in a very small Quantity, and with much Difficulty. These Symptoms thus related become very manifest from the Nature of a Gonorrhœa, and of the Liquor of the Lacunæ. For let the infected Liquor of the Lacunæ be tied up by Applications or Administrations of any Kind, or become grosser on a sickly Account, so that the Stimulus of the Corruption does not excite the Quantity of the Efflux in a due Proportion; in that Case the Liquor is still more corrupted, and becomes more sharp. Now this sharp Liquor being constantly applied in the excretory Ducts of the Glands, to the membranous Coat of the Urethra, excites Pain and an Inflammation.

Pain being thus made in the Urethra, we may easily conceive how it is propagated into the Bladder, and other Parts mentioned above; for the Urethra is a continued Duct to the Neck of the Bladder, and the Inflammation is very readily carried its Length, and communicated to the Bladder, and with it the Pain. This is likewise the Reason that the Vasa Deferentia and Vesiculæ Seminales, that open into the Urethra, partake of this Inflammation, and communicate the Pain into the Testicles: As also, that the Pain is conveyed into the Anus by the Means of the accelerating Muscles of the Penis, which terminate in that Part.

But to explain these Symptoms more particularly, that the Design we have in curing may become more obvious and direct, we will begin with accounting for the frequent Desire of making Water; and why it is voided with great Pain, and in a small Quantity. The Reason of this Symptom is, that the Neck of the Bladder being vastly inflamed, it is vehemently stimulated by the Saltiness of the Water, and by this Stimulating a frequent Desire of discharging it is excited. The Bladder itself being also inflamed, it cannot be so easily applied for expelling the Urine, and therefore it is thrown out in a smaller Quantity; and, upon both Accounts, is made with great Pain. Moreover the Neck of the Bladder being thickened by the Inflammation, it is opened or dilated with great Difficulty, and therefore the Urine is neither freely expelled, nor without great Pain.

The frequent Irritating the Bladder with the sharp Urine is the Reason why the quick and repeated Pain in making Water is a more constant Symptom of the Stoppage of the corrupted Matter, than are either the Pain in the Anus or in the Testicles, though the Pain in these is produced as really by the Pain in the Urethra as that in the Bladder, but not so directly. For Pain made in contiguous Parts is occasioned by the Stimulus or Compression of adjacent Parts that are affected; so that the derived Pain is equally owing to the Inflammation, as is the Pain in the Part originally affected. Daily Experience affords us various and sensible Examples of Pain derived to a contiguous Part from another that is first hurt. A Pain any way produced in a Finger is not only propagated by the common bending Muscles that may send a Branch to some Distance, and thus be carried directly a great Length up the Arm, but it likewise affects other Muscles in the same Contiguity, and reaches farther than the Origine of any of the Muscles of the Fingers, and may be propagated to Parts very distant from that first affected with Pain.

But which is more surprising, contiguous Parts affected mutually by the Inflammation of either, not only receive Impressions of Pain from each other, but will even adhere and stick to one another. The Adhesion of the Lungs to the Pleura is an Affection of this Kind, as is the Adhesion of an Intestine to the Peritonæum, and such Adhesions of many other Parts that have often been found in dissecting Bodies, especially those that were morbid or sickly.

All these grievous Symptoms being produced by the retarded Efflux of the Liquor of the Lacunæ, notwithstanding that is sharp and corrupted, and commonly flows in a greater Quantity upon that Account; yet as this Liquor is found at present in a small Quantity, for Reasons afterwards to be assigned, it acquires the greatest Degree of Corruption possible, and that by its not running off in the ordinary Quantity. Now as this very sharp Liquor is constantly applied to the Urethra by its continuing in the Lacunæ, which run parallel to its inner Coat, the Pain is rendered more and more intense. Our Inquiry therefore must be, why this Efflux is retarded, notwithstanding that the Liquor is more sharp, or is indued with a greater Stimulus, a Cause we formerly found sufficient for exciting a Running. It will easily be believed that Injections and Medicines, that are any thing astringent, inwardly administered have sufficient Power to check the Discharge of the corrupted Liquor; nay, Medicines of such Qualities are esteemed so sufficient a Cause, that seldom any other has been assigned for the Interruption; so that we may assert, that these Medicines are sometimes the Occasion of checking the free Efflux of the Liquor of the Lacunæ, though it be corrupted, and were otherwise sharp enough to produce a Running.

But another Cause never yet assigned for producing such a Stoppage, is when the Liquor of the Lacunæ, even in this its corrupted State, acquires an extraordinary Grossness, and on that Account becomes incapable to flow, or flows only in a very inconsiderable Quantity. This Grossness of the Liquor of the Lacunæ is acquired from a Grossness in the Blood itself in a great many Diseases, as in a Cold, a Fever, &c. The Way how this Grossness is formed by a Cold or a Fever, is obvious from the general Defect of Secretions at that Time; inso-much that Hippocrates observes that Ulcers, and I have observed that Issues, very commonly dry up in the Beginning of a Fever. And in great Colds, when a Fever is generating, and in several other Disempers, the Liquor of the Lacunæ is become so gross, that the Quantity of its Efflux is but moderately augmented; though it being corrupted it stimulates the Glands and their excretory Ducts, and for that Reason ought to increase its Quantity considerably: Hence it is that the Pain, and all the above-mentioned Evils or Misfortunes are produced.

Some very good Practitioners, who have been apprised of the great Danger and Difficulty that arises from the slow Running in this Circumstance of a Fever, have attributed the Slowness of a Running, or the Smallness of its Quantity, to the Heat of the Fever, which they supposed did lick up the Matter of the Running; but this slow Efflux is truly an Unaptness in the Liquors to run off, and that because of their Thickness.

Because an inward Shanker sometimes suppresses the Running, it may give some Suspicion of its being an Occasion of this terrible Symptom; but Shankers seldom give any great Pain, nor do they infect the Liquor of the Lacunæ till they begin to dissolve; and this Liquor not being infected during the Hardness of the Shanker, there is not naturally any Pain produced on that Account, or Shankers in the Urethra never produce this painful Symptom. All this is manifest from the Experience of inward Shankers.

From what has been said it plainly appears, that the Inflammation and Pain in the Urethra, in the Glands, Bladder, Testicles, and in the Anus, are altogether the Consequences of this sharp Liquor's being pent up in the Lacunæ; and therefore, that in curing these Symptoms, little or no Regard is to be had to the Inflammation in the mentioned Parts, but rather to what may make the pent up Liquor flow. Indeed the Folly of endeavouring to cure Diseases, by taking Aim at their Symptoms,

is as conspicuous in the present Case, as it can be in any other whatsoever: So that Bleeding, Emulsions, and other cool Administrations that most readily occur to French Surgeons, are of no manner of Use. But Bathing, that commonly goes along with the former, is of great Use; though not for cooling an Inflammation, as they think, it really satisfying the principal End and Design of unlocking the Lacunæ, and giving a Passage to the stagnating Liquor. So vastly different is a Practice managed upon Analogy, and a blind Experience, and when our Experience is directed by Reason.

And therefore, as the Indication of Cure is always best drawn from the Nature of the Disease, I will endeavour to deduce the Method of Cure from the Nature of this Symptom thus explained, which being occasioned by the Discharge out of the Lacunæ being very little or nothing at all; and that upon the Account of the extraordinary Grossness their Liquor acquires, either on Account of the present State of the Blood, or that the Blood and the Liquor of the Lacunæ are become thicker by the Means of Medicines that bring this Quality of Thickness upon the Blood. The Method of Cure therefore consists in destroying the mentioned Grossness of these Liquors, which will be found more easily done when this Thickness is acquired by Medicines, than when it is occasioned by the Means expressed, while I investigated the Symptoms of Inflammation and Pain.

In conducting the Practice of Physicians for relieving these Symptoms, I cannot proceed in the Method of giving the Designs and Prescriptions of other Authors, none other having spoke of this Accident before me, and on that Account we have not any Method for curing what either they never observed; or they were afraid to relate Symptoms so surprising, and at the same Time so new, lest the first should cast some Reflection on their Judgment in treating, or the last on their Skill in discerning them. But as I am sure that no such Symptom has been mentioned among Physicians, so the Mistakes I might be under in first apprehending it, give more Credit to the rest of the Relation to Men of Worth and ingenious Physicians.

HISTORY I.

In August 1716, I was sent for to visit a Patient who had been long ill of a Gonorrhœa, which had been checked by an Injection made with Plantain Water, Honey of Roses, and Sugar of Lead. He had it once checked before he brought it from a foreign Country. As I found the Running of a very green Colour, and the Glans very much inflamed, I was persuaded that the Inflammation was continued from about the first Lacunæ down to the Neck of the Bladder, so that the best Course was to excite the Running.

For this Purpose I prescribed him a Scruple of Æthiops Antimonialis with ten Grains of Gum Guaiacum, to be taken every Night going to Bed, and in two or three Days the Running increased, and his Pains vanished.

HISTORY II.

It was in August 1716 that I found the *Algedo*, when a Gentleman put himself under my Care to be cured of a Gonorrhœa; but finding he was ill of a continual Fever, I recommended it to him to return to his Lodging and to go to Bed.

Next Morning his Running was in a very small Quantity, though it had then appeared five Days; the Glans was prodigiously inflamed, and the Fever of a low Sort, that was like to hold him a Fortnight, or three Weeks.

I told him that in his Circumstances no Method for curing a Gonorrhœa could agree with the Practice of the Fever, excepting that by a proper Injection; but something extraordinary appearing in the Running, I was not willing to make Use of this new Method in a Case liable to a great Variety of Accidents, whereby both I and the Method might be exposed to much Obloquy; and as the Infection could not creep into the Blood by neglecting to cure it, the safest Course we could take was for curing the Fever.

Our Matters went very successfully while we pursued this View, but I was surprised that the Running did not increase as the Fever came to its State; but was rather less, and the Gentleman begun then to complain of a Pain in making Water, and that he had often Occasion to make it. In a Fortnight the Fever went off, but my Patient was not yet in a Condition to enter upon any Course for the Gonorrhœa, which continued to be as was related at the Beginning. When he had been three or four Days about the House, and the Season of the Year warm, he was tempted to go out a walking in an adjacent Garden, though the Wind was Easterly, and the Garden on the River Side. He took Cold, and the Pain and Desire of making Water increased so vehemently, that he could not sleep, but sent early next Morning for me.

When I had considered these Symptoms, I found the Bladder was inflamed, but did not dream of this Inflammation being derived from some other Part, and therefore I ordered him Emulsions, Bathing, to be bled, and Clysters, on Account of this Inflammation. Moreover, the Pain being excessive, he sometimes took Clysters in a very small Quantity, in which were five Grains of Opium, to procure a little Quiet and Re-

spite from it. But as these Methods and Applications afforded small Relief, I was joined with another Physician, who agreeing with me, about the Opinion I had of the Bladder being inflamed, we pursued the former View with Changes of Medicines, and with as little Success.

The Pain darting some Time into the Anus, gave the other Physician some Suspicion of the Piles, but I thought it passed into that Part from the Bladder, as I did believe the Pain he found sometimes in some one of his Testicles likewise did: Nay, after every Day suspecting a new Disease, this Physician, at length, suspected his having a Carnosity, which I convinced him to be impossible in so little a Time; yet these Differences occasioned Mention to be made of having Assistance from a Surgeon, which I readily agreed to, and was mightily pleased with the Person he named, though he was a Stranger to me, he having a very good Character, both for his Honesty and Skill.

But before we met, the Disease shewed itself, for in the Water, appeared a great deal of Running, and of a Slough; so that afterwards we found we could have no other End to pursue, than that of exciting the Running. The Surgeon confessed he never had any such Case, but that the Matter of the Gonorrhœa had been licked up by the Fever. I added, that the Fever had certainly hindered the Running, as I have formerly explained, together with the mentioned Symptoms of Pain in the Bladder, Anus and Testicles; but when this Surgeon and I were met alone at this Patient's Lodging, I offered my Opinion about the true Cause of all such Accidents, which he generously acquiesced in, and told me, he had long entertained a like Opinion. He took Occasion, likewise, to declare to my Patient, that no Method could have been taken for the Gonorrhœa, that would not put him in Danger of his Life, or have ended in the Lues Venerea.

The Method therefore we took to provoke the Running, was by giving mercurial Medicines, and purging them off.

Take Calomel fifteen Grains,
Solid Laudanum one Grain,
Conserve of Hipps, enough to make a Bolus, to be taken going to Bed, and to be repeated the two succeeding Nights.

Take of Gereons Decodion of Senna, four Ounces,
Calabrian Manna, half an Ounce; make a Potion, to be taken the Morning after the last Bolus.

He proceeded in this Method almost a Month, before he was free from Pain. In all that Time, his Running never was in a great Quantity. He was obliged to persist taking the Emulsions, Broth, and other soft Liquors that were formerly prescribed for the Inflammation, which were proper enough to ease this Symptom, though not to cure it. When the Pain and Difficulty in making Water were removed, the small Gonorrhœa was cured by one of the common Forms.

HISTORY III.

In the same Month of August, 1716, I received a Letter from a Gentleman in the Country, desiring my Advice for an intolerable Pain he had when he made Water; and the frequent Desire he had to make it; which he always did in a very little Quantity. He told me, that he often was afflicted with the Pain in his Testicles, or in the Anus, when it was not working about his Bladder. He found he had a Gonorrhœa in the Morning, which stopped by Noon, and ever since that Time he had been tortured with Pain.

These Symptoms increased so fast upon him, before he could expect an Answer to his Letter, that he forthwith came to London, and made me a Witness of his Torment. But as it was manifest that the Pain was occasioned by stopping of the Gonorrhœa, and this by an excessive Cold; I endeavoured to excite the Running, and that by the mentioned Method of Calomel Boluses he took four Evenings successively, which were afterwards purged off next Morning after he had taken every Bolus. His Drink was as soft as we could contrive, but not diuretical, and his Diet was chiefly Broth; yet we found no Manner of Respite from these terrible Symptoms in a Fortnight. And therefore I ordered mercurial Medicines of greater Efficacy, and that he should take a Bolus every other Evening made with eight Grains of Turbith Mineral; which neither purging nor vomiting him, each Dose was augmented to fourteen Grains in the Turn of a Fortnight; which very great Dose would purge him twice or thrice, but never vomited him: I would gladly have put him into a Salivation, rather than have continued in a Course of so vast Doses of so rough a Medicine; but some Business he had then depending did not admit of it, so that I was forced to proceed in this Method for a Month or five Weeks before he found any Benefit from it. After that Time he had no Darting into the Anus, he made his Water very freely and without Pain, but he suspected that he sometimes found a Darting into one of his Testicles. It ran a little for three or four Days, but it afterwards ceased of itself.

When

When our Matters were brought to this Pass, I had him purged four or five several Times, intermitting always a Day between the Purging; and after he had taken this Physick I ordered him fifteen Grains of Turpeth Mineral twice a Week for a Fortnight. After all, he drank a very strong Decoction of the Woods for six Weeks together.

Notwithstanding the great Quantity of Mercury this Gentleman had taken, which he took as well as the Diet-drink with the utmost Exactness of Diet, and Manner of Living, he broke out all over his Body four Months after he had finished this Course; yet he found nothing to complain of, but that he had at Times a small darting Pain in some one of his Testicles. This Misfortune put us under the Necessity of a Salivation for a more perfect Cure, and his Affairs now favouring this Method, he went straight under that Course.

He spit about two Quarts every Day for about a Month, and about a Quart in a Day for three Weeks more; in the last Part of this Time he felt no Manner of Pain; yet in less than six Weeks after the Salivation, he broke out again in his Legs and Arms, but was cured by the diaphoretic Mercury of Paracelsus. *Cackburn of a Gonorrhœa.*

ALGEMA. *Ἀλγεμα.* *Uneasiness, Pain.* The Word is also often used by Hippocrates, to signify the Disease whence the Pain proceeds. This Author makes Use of the Word in a Multitude of Places.

ALGEMET. *Coals. Rulandus.*

ALGERIÆ, ALGERIE. *(Calx) Lime. Rulandus. Johnson.*

ALGEROTH. *(Mercurius Vitæ) Mercury of Life.* A Preparation of Antimony and Sublimate, so named from *Algerothos*, a Physician of Verona. *Castellus.*

ALGOIDES. An aquatic Plant of which Monsieur Vaillant gives the following Account:

Algoides vulgaris, Potamogeton capillaceum, Capitulis ad Alas trifidis, B. Pin. 193. Prod. 101. Raii Hist. 1. 190. N° 12. Item, Potamogeton Affinis, Graminifolia, aquatica, Raii ibidem, N° 13. Itemque Potamogeton omnium minimum, Graminis Facie capillaceum, Filiculis curvatis binis, ternis, Dorso dentato, Hort. Cath. ejusdem Raii Hist. 3. 122. Potamogeton similis, ramosa, & ad Genicula polyerratos, Pluk. Tab. 102. fig. 7. Equisetum polygonoides, Aquis imitans, Potamogetonis tenuifoliae Facie, ad Genicula vasculiferum, Hist. Oxon. 3. 621. N° 20.

It is strange that a Plant, so common in our Waters, should not be mentioned in the *History of those Plants which grow in the Country about Paris.*

It is to be observed, 1. that though Ray be not one of those Botanists who love to multiply the Species of Plants without Necessity, he has yet made three of this one, as you see by the Quotations of the different Synonyma. 2. That though among the Characters he gives of the *Potamogeton* he had mentioned the Growing of the Flowers in Form of an Ear, and though he had observed that those of this Plant, whose Structure he did not know, were dispersed along the Stalks and Branches, yet he scrupled not to reduce it under that Kind, from whence he should in Truth have excluded it both in the last Edition of his *Synopsis*, and in that of his *Methodus*. 3. If this Author saw no more than two, three, or at most but four Pods, or Cornicula (so he names what I call *Capfula*) at each Joint of the Plant, it was because he had the Fortune only to meet with one or two that happened to be no better furnished, for they have commonly five and sometimes six at a Joint.

The *Algoides* is a Species of aquatic Plants, with imperfect and hermaphrodite Flowers. Each Flower proceeds from the Wing of a Leaf, and commonly consists only of a Testicle, or Stamen, and some Ovaries disposed in a circular Order, which become so many solid monosperm Seed-vessels. The Leaves are simple, intire, without a Pedicle, and for the most Part stand opposite by Pairs.

We know only one Species of *Algoides*.

It grows at the Bottom of Waters, and because its Leaves resemble those of *Alga*, I suppose it took the Name of *Algoides*. *Mémoires de l'Académie Royale des Sciences Ann. 1719.*

ALGOS. *Ἀλγος.* The same as **ALGEMA**, which see.

ALHAGI. This is the *Agul & Almagi Arabibus, Planta spinosa Alomam respiciens, J. B. Genista spartium spinosum Foliis Polygoni, C. B. Spinosum Syriacum, Park.* The PLANT THORNY BROOM OF SYRIA.

It rises a Cubit or more in Height, and is set very thick round with a great Number of exceeding sharp, slender, pliant Thorns, on which grow divers Flowers of a purple Colour. When these fall off, they are succeeded by small, long, reddish Pods (like those of the Scorpius) full of Seeds of the same Colour.

The Inhabitants of Aleppo gather from it a new Kind of Manna, the Grains of which are somewhat larger than Coriander.

It is bushed round with an almost infinite Number of small, smooth Branches, which disperse themselves from the Trunk in a very beautiful Order, and are for the most Part overspread with Dodder, after the Manner of Thyme. At the Joints of

the Thorns grow the Leaves, which are ash-coloured, oblong, and of a polygonal Shape. The Root is long and of a purple Colour.

The Manna, gathered from this Shrub, is called by the Arabians *Terenabin*, or *Trangebin*.

It is found in Persia, and in the Neighbourhood of Aleppo; also about Kacka a City in Mesopotamia.

The Leaves are of a hot drying Nature, and the Natives use the Flowers as a Purgative, one Handful of which boiled in Water suffices for a Dose. *Raii Hist. Plant.*

ALHANDAL. *Colocynth.* See **COLOCYNTHIS**.

Our College Dispensatory directs a Troche under the Name of *Trachisci Alhandal*, as follows:

Take of white Colocynth Pulp cleared from its Seeds, and cut small, of Gum Arabac, Tragacanth, and Bdellium, each six Drams. Let the Gums be macerated for three or four Days in a sufficient Quantity of Rose-Water, so that they may be dissolved in it; and with the fore-mentioned Pulp let all together be beat up into a Consistence for Troches.

“ This Contrivance is as old as Mesue, and hath been but little varied in all the Hands it hath passed through; it seems originally designed by the Gums to deaden, in some Measure, the violent Operation of the Colocynth.” *Quincy's London Dispensatory.*

ALHANNA. The same as **ALANA TERRA**, which see.

ALHASEF, or ASEF. A Sort of Pustule, called also **HYDROA**, which see.

ALICA. A Food much celebrated amongst the Antients. But the various Accounts given of it by different Authors make it somewhat uncertain what it was. For some represent it as a Sort of Grain, and others as a Sort of Aliment made of Grain.

In order to give a just Idea of this Aliment, I shall insert the different Passages wherein the Antients have taken Notice of, and then give the Opinion of Salmasius concerning it.

The Greek Word is *ἄλικο*.

Alica cleansed is a proper Aliment for the Sick in Fevers. If the Stomach be firm, and the Belly bound, it is advisable to give it in Hydromel; but if the Stomach be weak, and the Belly loose, it is best taken in Vinegar and Water. *Celsus, L. 3. C. 6.*

Alica is in the next Degree to Ptisan for Goodness, and has some few Qualities in common with it, which are the Cause that it is highly esteemed. Viscidity, Smoothness, and Pleasantness of Taste, are common to them both, but in all other Respects Ptisan exceeds *Alica*; and both of them are either simple or compounded with Honey only. *Aræteus de Acut. Morb. L. 1. C. 10.*

The Chondrus [*χόνδρος*] is made of that Sort of Zea which is called dicoccos (*double-grained*). It is more nourishing and binding than Rice, and much more agreeable to the Stomach. Boiled in Vinegar, and the Parts anointed therewith, it takes off the Lepra [*λεπρα*] amends the Roughness and Scabbiness of the Nails, and heals a beginning *Ægilops*. The Decoction used in a Clyster, is good for such as labour under a Dysentery accompanied with Pains. *Dioscor. L. 2. C. 118.*

Alica in other Things is like Chondrus, but binds the Belly more. *Paulus Aeginet. L. 1. C. 73.*

Alica is a Kind of Wheat. We ought to be very careful in preparing those forbile Liquors which are made of it; for its Juice is mixed with Water, and requires a good deal of Boiling; whence it is apt to deceive those that prepare it, who think it is boiled enough, and so present it to the Sick who are great Sufferers by it, for it soon thickens, being of a gluey viscid Substance. Therefore putting a great deal of Water to it, boil it very well, and stir it with a Stick of Dill till it be enough, when you may throw in a little Salt, and if you add a little Oil at first, it will be never the worse. But for healthy Persons, who by Reason of a vehement Gnawing of the Stomach, or a sudden Transit of a bilious Humour, may want a hearty Draught, let the *Alica* be boiled till it be quite soft, and then strained, and then it makes a Liquor like Ptisan, which is to be drank off. The same Way of Preparation is to be used with *Alica* after it is steeped in Water. *Oribas. Galeno-Med. Col. Lib. 4. C. 1.*

Alica ought first to be macerated in Water, and three Eights of a Pint allotted to three Pints and a half of Water, and two Pints of Milk. Let it boil gently over the Coals, and stir it, holding the Vessel in your Hand that it may not burn. But observe that the Milk is to be poured hot into it, when almost boiled enough. *Oribas. ex Diensch. Med. Col. 4. C. 7.*

Alica is more drying than Wheaten Meal, and therefore not so proper to bring a moderate Inflammation to suppurate as the other, but is better than Wheat for humid Inflammations. *Oribas. Med. Col. Lib. 14. Cap. 37.*

Alica and Simila are of a very thick and glutinous Juice. *Oribas. Euphrat. Lib. 1. Cap. 19—21.*

Alica is a Kind of Wheat, very nourishing, and of a gluey Juice, whether you eat it boiled in Water, or take it in Mulsu-
m, or Sweet-wine, or with some Astringent (which may be proper on Occasion) or eat it fried with Oil and Salt. Sometimes Vinegar is put to it; and *Alica* prepared after that Manner, we are told by Physicians, made a Ptisan; and some say that a Ptisan of *Alica* was Food for a sick Person. Some of the Antients, as Diocles and Philotinus, call *Alica* thus prepared, a *Wheaten Ptisan*. Therefore its Name, as well as that of *Sitanium*, is seldom to be met with in old Authors, for they call it by the common Name of *Wheat*. *Galen. de Aliment. Lib. 1. Cap. 6.*

Alica is like the Seed of *Tragum*. *Galen. de Aliment. Cap. 13.*

Galen, after discoursing of the Typha, Olyra, and Zea, says, there are very many Sorts of Grain like them, though not quite of the same Kind; some of which seem to hold a middle Place between Barley and Typha, or between Typha and Olyra, or Olyra and Wheat; some come nearest in Nature to Olyra, others to Barley or Typha; some to Wheat, others to Panacum, or Millet. And these have Names too; some simple, as that of which *Alica* is made in Italy; some compound, as what in Cappadocia they call *Gymnocrithos*, that is, *Barley bulled*, and what in Bithynia they name *Zecopyros*. *Galen. de Aliment. L. 1. C. 13.*

There is no small Difference in the Kinds of Wheat; for what is heavy, dense, and yellow in its inner Substance, affords most Nourishment, and such as is of a thick and glutinous Juice; but the light, rare, and of a white Substance, nourish less, and generate a Juice not so glutinous. *Similago* and *Alica* nourish much, and are of a thick and glutinous Juice. Such as are obliged to use an attenuating Diet must not meddle with *Similago*, but they may feed moderately on *Alica*, either boiled in Water, or with Mulsu-
m, or Wine, and that of a sweet Kind, provided it be yellow, of a thin Body, and nearest in Strength to the *Palernum*. *Galen. de Aliment. Lib. 1. Cap. 6.*

Alica, white Bread of Wheat, *Tragus*, *Pork*, and *Eggs*, are Aliments of very good though viscous Juice, and afford excellent Nourishment, where the Stomach is able to concoct them, and the Liver to convert the Chyle into Blood. But as they retain their Viscosity, the Passages of the Liver and Reins, especially where they are strait by Nature, are subject to be obstructed by them. Therefore the frequent Use of them is observed to beget a Sense of Weight, and sometimes a Pain about those Parts. But an Obstruction of the Liver is accompanied with the Hindrance of the Distribution of the Chyle, and a Plenitude in the Meseraic Veins and those of the lower Belly, whence there is Danger of a Phlegmon in the Parts where the Collection is made, or a Putrefaction of the redundant Humours, which must of Necessity be concocted and converted into Blood, or else putrefy, as it always happens where they make too long a Stay in a warm Place. *Galen. de Succ. Ben. Cap. 2.*

Ptisan seems to nourish soon after it is taken, but it affords little Nourishment and quickly ceases; whereas *Alica* nourishes much, and continues to do so for a long Time. *Galen. in Hippocr. Aphor. Com. 2. Aph. 18.*

Alica is reckoned by *Pliny* among the vernal frumentaceous Kinds, or such as are sown in the Spring, with Respect to Italy, as *Milium*, *Panicum*, *Lens*, and *Cicer*. *Plin. Nat. Hist. Lib. 18. Cap. 7.*

Pliny, in his *Natural History*, *L. 18. C. 11.* after entertaining us with an Account of several Sorts of Bread and their Names, with various Ways of dressing Grain, and taking Notice of the Rise of Bakers, congratulates his own Country, Italy, as carrying the Palm for Fruits, on Account of the finest and most wholesome *Alica*, which is no where else so well prepared. It is true, says he, it is prepared also in Egypt, but that scarce deserves mentioning. It is made in several Places of Italy, as in the Districts of Verona and Pisa, but the best is in Campania.—*Alica* is made of Zea, which we call *Seed*. This they pound in a wooden Mortar, lest the Hardness of a stone Mortar should break it too much, with Pestles, and Criminals condemned to hard Labour, as every one knows, are employed in it. To the foremost of these Mortars stands affixed an Iron Grate-box, whence the Chaff being winnowed off, the Grain thus stripped of its husky Part is beaten over again. By this Means we have three Sorts of *Alica*, the Small, the Middling, and the Largest; this last they call *Apharema*. All this While they have acquired nothing of that extraordinary Whiteness which so much recommends them, though the Alexandrian are in this State the best. But what is really to be admired, after they have taken so much Pains to cleanse it, they have a Way to mix it with Chalk, which incorporates with it, and communicates its Colour and Fineness.—Bastard *Alica* is made chiefly of African Zea, which degenerates in that Country. It has a broader and blacker Ear, and a short Stalk. They pound it with Sand, and yet can hardly free it from the Hulls, after which it shrinks to half the Measure of the original Grain. Then they add to it a fourth Part of white Gypsum (Plaster) and having well mixed them pass them through a Sieve that

is used for Meal. What remains they call *Exceptitious*, and is the largest Sort. The rest is passed through a Sieve with finer Holes, and is called *Secondary*. This is passed through a third Sieve so fine that it will only transmit Sand, and has then the Name of *Gribraria* bestowed on it. There is another Way of adulterating it, which is used every where. They chuse the whitest and largest Wheat, and having first parboiled it, dry it in the Sun, and then sprinkling it a little; break it in a Mill. Better *Alica* is made from Zea than Wheat.

Alica is an Invention of the Romans, and of no great Antiquity, for if it were, we should not have heard so much from the Greeks in Praise of Ptisan. I do not think it was in Use in the Time of Pompey the Great, and therefore we find very little written of it by the Disciples of Aesclepiades. That it is highly useful none doubts, whether it be taken diluted in Hydromel, or boiled and the Decoction drank, or eaten as Pulse. To stop a Looseness it is first roasted, and then prepared with Wax. But it has a peculiar Virtue in restoring such as by long Sickness are reduced to a Cachexy; let a Quarter of a Pint boil gently in a Pint of Water, till the Water be consumed; then put to it a Pint of Goats or Sheeps Milk, and drink it for several Days together, and then mix Honey with it. Such Draughts are good to mend a consumptive Disposition. *Plin. L. 2. C. 25.*

Alica was thought to nourish much (whence it took its Name; according to *Sextus Pompeius*, *ab alendo*) so that it deserved to be called full Diet, according to *Galen*. It generated good Juice, but glutinous, and apt to cause Obstructions; to remedy which Fault, the Antients had various Ways of preparing it; sometimes they mixed it with Hydromel, sometimes with sweet Wine, to make it an arteriacal Medicine, and good for Consumptions; sometimes with an Astringent for Diarrhoeas, or with Pomegranate Seeds, and sometimes fried it with Oil and Salt. And because *χόνδρον*, or *Alica*, has nothing in it deterfive or attenuating, if they intended to prepare it for a forbile Liquor that should have these Qualities, they boiled it not only with Dill, but with Leeks, Pennyroyal, Calamint, or Hyssop. The *χόνδρον* of the Antients does not seem to differ much from our wheaten Preparations, if you except their Chalk and white Mortar. There was also a Sort of Bread made of Chondrus, called *χόνδριν*, which nourished very much, and did not easily pass off downwards. When we read in *Aetius* *χόνδρον ἀλικόν*, in Conjunction, he means no more than barely *χόνδρον*; but seems to join the Names, because none should doubt of the Thing signified. But it is plain that both he and *Paulus* have inserted many Names in their Writings, which were unknown to the Antients, and in so doing consulted Convenience more than Elegance and Propriety. *Gorranus in voce χόνδρον.*

Alica is sometimes taken for a certain Species of Bread-corn. See *Pliny* and *Celsus* [before quoted] but more frequently for a Preparation of Zea, which is called *Seed*. *Alica*, in its large Acceptation, differs from the Chondrus of the Greeks, as the Genus differs from the Species, for the Chondrus was not prepared with Chalk, but with white Mortar and Sand, like the African Bastard Zea mentioned by *Pliny*. *Rail Hist.*

χόνδρον is *Alica*, for so the Glossaries interpret it, *Alica*, *χόνδρον*. How it was made *Pliny* explains; "*Alica*, says he, is made of Zea, which we called a Seed, &c." So then the Zea was pounded in a wooden Mortar to make *Alica*, not in a stone Mortar, lest the Hardness of the Stone might break it too much, for it was only to be husked, not bruised, and was to be beaten till it had lost all its Coats. This done, the naked Grain was to be pounded, or beaten again, which produced three Sorts; that is, the Least, the second Rate, and the Largest. This, says *Pliny*, was called *Apharema*, ἀφαίρεμα, which was in a Manner only stripped of its Coats, the Grain, or Medulla, remaining unbroken; and this was properly the *χόνδρον* of the Greeks, of which there were three Sorts, but the largest was the best. So the *Geoponic Eclogues*: "Ἐπὶ δὲ ἅμα ἱπποκρίσθαι, κοσκίνην κοσκινύσθαι ἀφαιρέσθαι καὶ αὖτις διὰ τὸ πρῶτον σπένδιν γίνεσθαι χόνδρον, διότι δὲ ἐπὶ τῷ τῷ, καὶ ἰσχυρὸν ὁ τρίτος." "After they are husked or pilled together, they are passed through a coarse Sieve, and the fairest is what remains of the first Winnowing, viz. the Chondrus, the Secondary, or second Rate, is next, and the third is the worst and smallest." The Author says the same as *Pliny*, who expresses himself more clearly a little after, speaking of the Way of making the Alexandrian *Alica*, he says, "They increase it a fourth Part with an Addition of white Gypsum (Plaster) &c." as above. Here this Passage of the *Greek Georgics* above-cited is clearly explained. What is called *exceptitious*, *exceptitia*, in the Editions, is *exceptica* in the Copies. It certainly ought to be *Seslica*, Σελικα, so called κατ' ἴξιν, by Way of Eminence, which was passed with wider Holes, which *Pliny* called *farinarium*, and the Greek Author ἀδελτικόν. Hence it appears, that the Greek *χόνδρον* is the Roman *Alica*. And the Greeks called it *χόνδρον*, *Chondrus*, because it was broken into great Fragments, not ground to a Meal. Hence *Πυρὶς χόνδριν* in *Athenæus*, Corn ground into gross Fragments. So *χόνδρον αἰών*, Corns of Salt, *χόνδρον ὑβάν*, Bits of Frankincense. Hence also *χόνδριν ἀλόν*, chondriss Bread, such as was made of.

Wheat bruised or broken into large Fragments like *χόνδρος*, *Chondrus*.

Though the Nature of the *Chondrus*, or *Alica*, sufficiently appears from what has been said, some have reckoned it among the Species of Grain, as a Sort of Wheat. Paulus Aegineta, *χόνδρον σίτου τὸ ἰσθῶς*, *The Chondrus, a Species of Grain*. And Galen, *τὴ γένος τῶν πυρῶν ἴσθῶς ὁ χόνδρος, ἰκανῶς τρέφει μὲν τὴν γλίσσιν, ἔχει τὴν χυμὸν*. *Chondrus is a Kind of Wheat, sufficiently nourishing, and of a viscous Juice*. Lib. 1. de Aliment. He adds that by the Antients it was called *συστὴν τῇ περισσότητι*, Wheat appellatively. Who cannot but admire so much Ignorance in so great a Man? He cites Hippocrates, who says, *τὰς ἐκ τοῦ χόνδρου κατασκευασμένους ἀρτας τρέφουσιν μὲν ἵναί, διαχέουσιν δὲ ἥτις*, *Bread made of Alica was very nourishing, but not very easy to pass off*. Hippocrates does not speak this of such a Sort of Corn, but as the Property of a Kind of Meal, properly so called from its being coarsely ground. Bread made of this Meal, he says, was very nourishing. These were called *χόνδριται*, *Chondritai*, as the *σμιδαλιται*, *Semidalitai*, were so called, because they were made of Semidalis, which also was not a Species of Grain, but a Sort of Meal. In Galen's Time the Greeks had left off the Use of the Word *χόνδρος* for *Alica*, and changed it for the Word *Alica*, corrupted *ἀλιξ*. So that they knew nothing of the ancient *χόνδρος*, and by that Means came to interpret it of a Species of Wheat. *Salmasius de Homonym. Hyles latr. Cap. 57.*

ALICES. The little red Spots in the Skin which precede the Eruption of Pustules in the Small-pox. *Castellus*.

ALICORNU. The same with UNICORNU, which see.

ALIENATIO MENTIS, is the same as DELIRIUM, which see.

ALIENUM. In a medicinal Sense it is applied to any Thing that is foreign and troublesome to the Body. Sometimes also it imports *corrupted*, but *alienatus* is generally used in this last Sense.

ALIFORMES PROCESSUS. See PTERYGOIDES.

ALIGULUS. A Confection. *Rulandus*.

ALILAT, or *Ἀλιλα*, an Arabian Word, signifying what the Assyrians call *Μελιττα*, the Jews *לילית* *Lilith*, and the Greeks *Ἑλεθουσα*; and is the same as *Mater Terra*, and *Filia Lucina*, or *Luna*, the Deity that presides over Child-birth. *Ἀλιλα* is as you would say *לילית* *Aliluth*, whence comes *Lilith*, and also the Word *לילית* *Lailah*, signifying the Deity of the Night. *Ἀλιλα* is as much as to say *Ἀλιθα* *Alitha*, which also signifies a Goddess, as well as the Greek *Ἑλεθουσα*, which is much the same as *Ἑλεθουσα* *Elithuia*. In the most ancient Ages, *ἱλιος*, or *Ἡλιος*, among the Greeks, signified *Filius*, a Son. Therefore *Ἑλεθουσα* was the same as *Κορη*, or *Filia*, a Daughter, or *Libera*; as *Ἡλιος* was the same with *Κίρπος*, or *Liber Pater*. *ἡλι* is also the Gothic Name of the Sun. The Assyrian *Μελιττα*, or *מלכת* *Molidbetta* signifies a *Midwife*; for Women with Child reckon by Moons. *Alilat* therefore is the same as *Lucina*.

ALIMA. A Sort of Sand, found in Gold Mines, of which they make Lead. *Rulandus*.

ALIMENTA. *Aliments*. Whatever is taken to nourish the Body, from *Alo*, to nourish.

The Nature of *Aliments*, in general, may be understood by what is said on this Subject under the Article ACIDIA, and the Article ALCALI. And the Properties of particular *Aliments* are specified under their respective Names.

The Antients, particularly Galen, have been very diffuse on the Subject of *Aliments*.

As I would avoid being tedious, I shall give Hippocrates's own Abridgment of his Sentiments upon *Aliment*, I mean his *Treatise de Jibri Pictus Ratione*; and because Galen is too prolix, I shall insert his Doctrine from later Authors who seem to have taken great Pains to epitomise his Works, not without adding some Things from their own Fund. And I shall end this Article with some Chymical Observations made by Mr. Geoffroy the Younger, and by him communicated to the Royal Academy of Sciences.

I attribute the following short Treatise to Hippocrates, on the Authority of Galen, who thinks it certainly done by him, or his Son in Law Polybius, though even in the Time of Galen it was said by some to be wrote by others either contemporary with, or perhaps elder than Hippocrates.

But I must remark one Error which was universal amongst the Antients, which is, that they imagined the Blood to be formed from the *Aliment*, in the Liver. But this Piece of Theory has been absolutely confuted, since modern Discoveries have made the true Passage of the *Aliment*, and the real Method of the Blood's circulating, manifest.

With Respect to *Aliments*, it must be observed in general, that it is very little worth their While to consider the different Qualities of Foods, who use Exercise daily sufficient to bring them to the Verge of Lassitude, who go early at a Night to Bed, and rise soon in the Morning; for all *Aliments* supply

a good Chyle when perfectly digested, by the Assistance of Exercise and Regularity. But the Consideration of *Aliments* is a Speculation of great Importance to the Valetudinary, the Lazy, and the Riotous.

The Regimen best suited to Persons in the ordinary Way of Life [*ιδιωτας*] is to eat plentifully, and drink sparingly in the Winter Time. They ought to drink pure undiluted Wine, to eat Bread, and to have their Meat all roasted. Greens are seldom or never to be eaten during this Season: By this Method, the Body will be preserved dry and warm.

In the Spring they should bring themselves by Degrees to drink more, and have their Wine more diluted. Their vegetable Food is to be more thin, and less in Quantity. Maza is to be used instead of Bread; their animal Food is on the same Account to be diminished, and boiled Meats are to supply the Place of roasted. They are to be sparing in the Use of Greens till Summer approaches, but feed on the more thin vegetable Foods, and boiled Flesh, and some Herbs boiled, or raw; their Drink in like Manner ought to be much increased in Quantity, and much diluted. But this Change must be brought about by Degrees, that the Transition may not be too great and sudden.

In Summer the Food ought to be thin Maza [*μαζα μαλακή*] the Drink plentiful and diluted, and all the Flesh boiled. And this is the Way of Living to be chosen while Summer lasts, in order to render the Body cool and moist during this hot and dry Season, which inclines the Body to Heat and Dryness. By this Management, we guard against the Inconveniencies of Summer: And by the same easy Steps as we pass from Winter to Spring, are we to proceed from Spring to Summer, in shortening our Allowance of dry Food, and increasing our Measure of Drink; but just the contrary Method must be taken as we pass on from Summer to Winter.

In Autumn our *Aliment* of the frumentaceous Kind [*σντία*] ought to be more in Quantity, and drier; and our animal Food [*ψα*] in Proportion. Our Drink, on the contrary, is to be diminished, and to be less diluted, that so we may pass over the Winter in the most commodious Manner, when our Drink comes to be least in Quantity and undiluted, and our *Aliment* the most copious and driest, under which Regimen a Person shall enjoy a good State of Health, and be least sensible of the Severity of the Weather in this cold and humid Season of the Year.

For Persons of a full Habit of Body, whose Flesh is soft, and their Countenances ruddy, it is most advisable to use a dry Kind of Diet for the greatest Part of the Year, because their Constitutions abound with Moisture. On the contrary, they who are lean, whose Fibres are dry and tense, and whose Complexions are tawny or black, ought to feed on moist *Aliment* the most Part of the Time, as being most agreeable to the Dryness of their Bodies.

Young Persons are to chuse such Meats as are tender and moist, because their Youth inclines them to Dryness, and their Fibres are rigid. But Persons of an advanced Age are to use a dry Kind of Diet for the most Part of their Time, because Bodies at that Period of Life are soft, moist, and cold.

In general, our Regimen of Diet is to be accommodated to the Age, Season, Custom, Country, and Constitution, in such a Manner as to always guard against Attacks from Heat, or Cold; for this is the Way to live sound, and free from Diseases.

In Winter you should travel fast, in Summer slow, except in the burning Heat of the Sun. The Corpulent are to travel fastest, and the Lean slowest. In Summer you are to bathe often, in Winter but seldom; and Bathing ought to be used more frequently by lean than fat Persons. The Clothing of fat People in Winter ought to be the natural Stuff, in Summer the same dipped in Oil; but lean Persons are to observe the contrary*.

Such as are burdened with Fat, and desire to be thin, ought to take all their Exercises fasting, and afterwards to sit down to their vegetable Food, before they have recovered Breath from the Fatigue, or are cool, and then to begin with a Draught of Wine, diluted, and not too cold. Their Flesh ought to be dressed with Sesamum [oily purging Grain, *Dale*.] or some grateful preserved Vegetable, or something of that Kind, and to be very fat, that it might the sooner create a Satiety. Besides, they ought to eat but once a Day, to abstain from Bathing, to lie on a hard Bed, and to exercise themselves in walking naked as much as possible.

Lean Persons, who are willing to grow fat, ought to act directly contrary to the aforementioned Precepts, and to use no Exercise upon an empty Stomach.

As to Emetics and Clysters, observe the following Rules: During the six Winter Months use Vomiting, because this Season is more phlegmatic than the Summer Half-year, and generates such Diseases as affect the Head, and the Region above the

* This Passage perplexed Galen very much; but Dacier has taken away the Difficulty, by the Addition of three or four Words, in which he is warranted by a Manuscript in the King of France's Library.

the Diaphragm. When it is very hot, make Use of Clysters, for then it is very sultry, and the Body abounds with Choler, there is a Sensation of Weight upon the Loins and Knees, Heats arise, and griping Pains affect the Belly. The Body then wants to be refrigerated, and the Humours, which are exalted and tend upwards, ought to be drawn down from the higher Parts.

For corpulent Persons, who abound with Humidity, Clysters of a saline and thin Substance are to be prepared; to dry, lean, and feeble Bodies, fatter Clysters, and of a thicker Consistence, are best accommodated. These last are prepared with Milk, or the Decoction of Chich-pease [*κικυρεας*] or other like Ingredients, the thin and saline Clysters are made with Brine, or Sea-water, and other Things of that Nature.

The Use of Emetics is to be regulated in the following Manner: Persons of a fat and full Habit of Body are to vomit upon an empty Stomach, after Running or Walking very fast, about the Middle of the Day. For this Purpose they may take four Ounces of Hyssop bruised in six Pints of Water, with an Addition of Vinegar and Salt, to make it the more agreeable; let them drink this first leisurely, and afterwards quicker.

They who are of a thin and weak Constitution must vomit after Eating, in the following Manner: After coming out of the hot Bath, let them take half a Pint of pure Wine, and then make a Meal on Variety of vegetable Food; but not drink either at or after Eating, abstaining from Drinking while a Man may run ten Stadiums [about an English Mile and a Quarter]. Then mix up for them three Sorts of Wine, which must be the austere, the sweet, and the sour. Let these be drank first pure, soberly, and by small Quantities; but afterwards more diluted, and by quicker and more plentiful Draughts.

Such as have accustomed themselves to vomit twice a Month had better take an Emetic two Days one after another, than every fifteenth Day; but some observe a quite contrary Method.

As for those who are subject to throw up their Victuals by Vomit, or are costive, the best Method is to eat often in a Day, and of all Kinds of Food; to have their Meat dressed all Manner of Ways, and to drink of two or three Sorts of Wine. Those who are not subject to vomit, or who have loose Bellies, ought to manage themselves by a Method directly contrary to the foregoing.

Infants are to be washed with warm Water for a long Time, and to drink Wine diluted, but by no Means cold. Let their Wine be such as will not breed Inflammations, or cause the Belly to swell; by which Means they will be the less subject to Convulsions, will grow large, and have a good healthy Colour.

Women ought, in general, to observe a dry Regimen; for dry *Aliment* is best accommodated to the Softness of their Flesh, and Wine almost pure is best for the Womb, and to nourish the Child therein.

As to Exercise, Running and Wrestling ought to be used in the Winter; in Summer but little Wrestling, and no Running, but much Walking in the cool Air is then very convenient.

Those who are tired with Running ought to wrestle; and those who are fatigued with Wrestling ought to run; for by this Means he who exercises will procure a Warmth to the fatigued Part, compose himself at Leisure, and afterwards betake himself to Rest in the most agreeable Manner.

If a Person, during a Course of Exercises, be seized with a Diarrhoea, and his Food comes off undigested, he must forbear one Third at least of those Exercises, and eat but half his usual Allowance. For it is plain, that the Stomach is destitute of sufficient Heat to concoct such a Quantity of Food. Let him eat Bread very well toasted and put into Wine; let his Drink be very little in Quantity, but of the purest and undiluted Wines, and let him not walk after Meals, of which he must make but one in a Day, while under this Regimen. By this Management the Stomach will be wonderfully warmed and cherished, and have Strength to digest whatever it receives. This Kind of Diarrhoea is most incident to such as have firm, hard Flesh, especially when they are obliged to live much upon animal Food, being naturally disposed to this Disorder, for their strait and narrow Vessels are incapable of receiving the *Aliments*. This is a very uncertain Sort of Constitution, and ready to turn either Way, never remaining long settled on a firm Basis of Health. But they who are of a thinner and more lax Habit of Body, and more hairy, bear Eating of Flesh, and sustain Labour much better, and enjoy their Health much longer, than the others. They who are troubled with Eructations, and Inflammations of the Hypochondria, from the indigested Food of the preceding Day, ought to sleep longer than ordinary, and to force themselves upon some new Exercise, to drink their Wine pure, and in larger Quantities, and at the same Time to shorten their Allowance of Food; for there are plain Indications, that the Stomach, by Reason of its Coldness and Imbecillity, is unable to digest the great Quantity of Food which it receives.

For such as labour under Thirst, less Food, and less Exercise, with the most refrigerating and diluted Wines, are most proper to be advised. They who are afflicted with Pains in the Viscera, whether from Exercise, or hard Labour, ought to be-

take themselves to Rest without Eating, and to take a Draught, which, though little in Quantity, shall be a most powerful Diuretic, that so the Vessels of the Viscera may not be distended through a Repletion, whence Tumors and Fevers arise.

Persons who labour under Disorders that proceed from the Brain are first affected with a Stupor; they make Water often, and have other Symptoms in common with those who suffer under a Strangury. These hold them for nine Days, and if there be an aqueous or mucous Discharge from the Nose or Ears there is a Solution of the Disease, and the Strangury ceases. Plenty of white Urine comes off from the Patient without Pain till the twentieth Day, at which Time the Pain of the Head leaves him, but a Dimness of Sight remains, when the Patient fixes his Eyes long on any Object.

The Man of Understanding knows that Health is the most valuable Gift to Mortals, and when attacked by Diseases has Skill enough to baffle them, and be his own Physician. Hippocrates *μετὰ διαίτης ὕγιονος*.

The Man who takes due Care of his Health ought to know, above all Things, the Nature of *Aliments*. To say somewhat then in Relation to this Subject, *Aliments* that have an attenuating Quality open the narrow Passages, scour off the glutinous Particles that stick to Bodies, and incide and attenuate those which are gross. But if a Person accustom himself for a long Time to the Use of them, he is in Danger of being over-run with serous and bilious Humours; and if he perseveres in such a Diet, his Blood, in the End, will become melancholy. For all Foods of this Quality are apt to heat and dry to Excess, and by that Means to breed the Gravel in the Kidnies. He must abstain therefore from the continual Use of them, especially of such as are of a bilious Nature; for Meats of this Kind are only proper for those who abound with Phlegm, and crude, gross, and tenacious Juices. Many chronic Distempers have been cured merely by the Use of an attenuating Diet. And it is much better to abstain from Medicine, in Cases where we may attain our End by a Regimen; as I have known that out of many Persons labouring under the Gravel, and not a few under the Gout, who have had their Joints laid bare with Tophs, some have been perfectly cured, and others much relieved, by a strict Observance of the Rules of Diet. Some who have been a long Time afflicted with an Asthma, or Difficulty of Breathing, have been wholly released from that Disorder, or had the Intervals of their Fits very considerably lengthened. An attenuating Diet reduces an overgrown Spleen, and mollifies an hardened Liver, perfectly cures Epilepsies, if undertaken in the Beginning, and not a little moderates them, when grown inveterate. All that are irritating, or biting to the Taste, or Smell, are acrid and attenuating; and whatever is nitrous or bitter, the same has an inciding Quality. But there is no small Difference, whether any of these Simples be administered in Oxymel, Vinegar, Salt, or Oil. For Vinegar and Oxymel increase their Strength, but Oil diminishes it. In the Whole, among attenuating Eatables we shall find more Medicine than *Aliment*.

Foods of an incrassating Quality afford much Nourishment, provided they are well concocted in the Stomach and Liver; nor do they fail of generating Blood of a good Juice, and yet they cause Obstructions of the Liver and Spleen, and if there be but the least Beginning of an Inflammation in the Viscera, they greatly increase it, as well as Inflammations, and scirrhus Affections, and generate Abscesses. Of this Sort of *Aliments* some there are which generate only a thick Juice, as Lentils; others a glutinous, as Mallows; some both, as Animals which are covered with a Shell. But it is a safer Way, in order to Health, to use an attenuating, than an incrassating Regimen of Diet. But because the former neither affords much Nourishment, nor gives Force and Strength to the Fibres, we may safely, though with Moderation, at proper Seasons, indulge those who live by attenuating Food in the Use of Meats that generate a thick and very nutritive Juice, especially when they find themselves to want Nourishment. Indeed such as are not concerned in publick Offices, but can use much Exercise, and sleep as long as they please, are enabled by Custom to indulge themselves in the Use of Meats that yield a thick and glutinous Juice, and especially if after a full Meal they have no Sensation of a Weight or Tension in the Hypochondria. But such as, through Age or Imbecillity, cannot use Exercise before Eating, must wholly abstain from such Food, as well as they who spend their Lives in Sloth and Idleness; for Rest of the Body is as great an Enemy to Health, as moderate Motion is a Friend.

After all, Meats of a middle Nature between attenuating and incrassating are the best and fittest to be chosen, as keeping the Blood in a due Consistence. *Aliments* of this Kind then are most accommodated to our Bodies; but such as generate bad Juice are hurtful, and always to be avoided. And you will find it the best Way to shun Variety in Foods, and the rather if they are of contrary Natures, because they will never be brought to a due Concoction. *Orib. Med. Coll. ex Galeno Lib. 3. Cap. 1.*

ALIMENTS of an ATTENUATING NATURE.

Aliments of an attenuating Nature are Garlick, Onions, Leeks, Cresses, Mustard, Pepper, Alexanders, Pellitory of Spain, Origanum, Nep, Hyssop, Water-Mint, Penny-Royal, Thyme, Savory, when they are green; but dried, they become medicinal. And, generally speaking, dried Simples are stronger than the same green; and what grows on Mountains, or in dry Places, has more Virtue than what is gathered in Plains, or in Gardens. After the fore-mentioned, follow in Order Rocket, Water Parsnip, Smallage, Parsley, Basil, Radish, Cabbage, Beets, Carduus, Eringo, Nettles, Fennel, Coriander, Rue, Dill, Lovage, Cummin, Capers, the Fruit of the Turpentine-Tree, the Seeds of Caraway, of Anise, of wild Parsley, of Bishops-Weed, of Heartwort vulgar, and of Candy, and of wild Carrots, all odoriferous, acrid, and manifestly hot Simples. The Seeds of Rue and of Hemp vehemently attenuate, so as to become medicinal. Of Corn, only Barley properly belongs to this Class, and, though in an inferior Degree, wheaten Loaves baked in an Oven. From the rest you are to abstain, unless you have a Mind now and then to taste some Pease, or Lentils. But we are plentifully supplied with attenuating *Aliments* from Rock-Fish, and Mountain-Birds; for Animals that live on Mountains are of a hotter and drier Nature, and their Flesh least pituitous and glutinous. Therefore you may eat Starlings, Thrushes, Blackbirds, and Partridges, with House-Sparrows, and such small Birds as live about the Vineyards. Of Pigeons, wild ones are better than tame; and observe, in general, that Animals which are exercised, and live on dry Food, and breath a pure and free Air, are wholesomer than such as lie still, feed on humid *Aliment*, or are confined in Coops and Stalls. Of Rock-Fish, you may eat of the Rainbow-Fish, the Cock-Fish, the Old Wife, and the Scare, and, in short, whatever is of a soft and friable Flesh. But meddle not with those whose Flesh is hard and glutinous. The Cod-Fish is of a soft Flesh, but less friable than that of Rock-Fish; on the contrary, that of the Mullet is friable, but not soft. Therefore let Softness and Friability be the two Properties by which you are to judge of the Flesh of Animals; where these are in Conjunction, you may eat to Satiety; when both are absent, avoid such Fish intirely; if either be wanting, you are to eat, in such a Case, where better is not to be had, but not to Satiety. Your Cod-Fish then, and Whiting and Mullet, and other Sea-Fish may be eaten, for Want of Rock-Fish, especially with Mustard, as the Scorpion-Fish. There are some other Sorts of Fish that are endued with one of the above-mentioned Qualifications, but, by Reason of an Excess in another Property, are to be refused. For Eels, and most cartilaginous Fish, are of a soft, but, at the same Time, of a glutinous and pituitous Flesh, and are therefore hurtful to such as have Need of an attenuating Diet. Of cartilaginous Fishes, only the Cramp Fish and Turtle are allowed, and may be eaten, when Rock-Fish cannot be procured; the Sole and Plaice have the same Properties. As to Birds, I do not forbid those who use Exercise the Eating of Hens, Pigeons, and Turtle-Doves, especially such as live in the Mountains; but they must not be fresh killed, but the Day before at least, which I would have observed of all Animals whose Flesh is moderately hard. Salted Fish attenuate and incide in an extraordinary Manner; of these, chuse such as are naturally of a tender Flesh, but the cetaceous Kind is to be avoided. Pork salted may be safely eaten with Moderation. Of autumnal Fruits, such as mollify the Belly can do no Harm; chuse therefore soft Fruits before hard, and refuse such as stay a long Time in the Body; but eat of none to Satiety. Fruits extraordinary sharp or sour are contrary to the Regimen proposed; but the most adapted to our Purpose are Figs, Walnuts, Fillic Nuts, and bitterish Almonds. Olives are of such a Nature, that I can neither commend nor disapprove of them. As for sweet Things, whether Meats or Drinks, none but Honey, I dare say, generates an exquisitely thin Juice. White and thin Wines cut gross Humours, and expel them by Urine. Whey is accounted among Things endued with an attenuating Virtue, but Oxymel is much more accommodated to the Purposes of an attenuating Diet. *Orib. Med. Col. Lib. 3. Cap. 2. ex Galeno.*

ALIMENTS of an INCRASSATING NATURE.

Things which generate thick Juices are Loaves baked under the Embers, and such as are not well made, what they call *Tragus*, Cakes made of Flour and Must, and those they call *Arta*, and whatever else is made of wheaten Meal, without Ferment, or Leaven, particularly Cakes made in a costly and artful Manner of the same. Besides these, Simila and Alica breed Plenty of a thick Juice, but Amylum moderately. Kidney-Beans are of a thick Juice, and so are Lupines, and the inner Substance of Lentils, the Seeds of Sesamum and of Hedge-Mustard, Fishes which are called *soft*, such as the Kinds of Cuttle-Fish, the Polypus, and the cetaceous Kind. The following are of an extraordinary thick Juice: Oysters, Whelks,

the Purple Fish, Escallops, the several Sorts of Cockles, Nakers, and, in one Word, all that are covered with a Shell. To these we may add Eels, Snails, Deer, and Goat; Beef, Pork, Hare, Liver, Kidnies, Testicles, Brain, spinal Marrow, Udder, Tongue, Glands, this last moderately; Milk too much boiled, all Cheese, but least when new, or made of four Milk, four Milk boiled over the Fire, Eggs boiled to a perfect Concretion, and more so when roasted, but most of all when they are fried in a Pancake; Dates, Chesnuts, Acorns, Bulbi, Turneps, Mushrooms, the Root of Arum, Truffles, Pine-Nuts, Figs not full ripe, the Pulp of a Citron, Cucumbers too freely eaten, unripe Apples. Of Wines, the sweet generate a thick Blood, especially what they call *Defrutum*; and so does Must, and thick and black Wines. *Oribas. Med. Col. Lib. 3. Cap. 3. ex Galeno.*

ALIMENTS of a MIDDLE KIND.

Meats of a middle Nature between Attenuating and Incrassating are, Bread well made, Hens, Dunghil-Cocks, Pheasants, Partridges, Pigeons, Heath-Cocks, Turtle-Doves, Thrushes, Blackbirds, and all small Birds, Fish that live about the Rocks, near the Shore, or in the Shallows of the Sea, as Sea-Gudgeons, Lampreys, Soles; in a Word, all such as do not taste slimy, nor have a rank Savour; ripe Figs, and among Greens that grow wild, Seris, which is a common Name to several Species, for which the Attics have distinct Appellations, as Lettuce, Gum Succory, Chervil, and others innumerable. To this Class of Meats belong also wild Sparrowgrass, with the tender Shoots of the Dwarf-Laurel and Bryony. And also Wines of a yellow Colour, sweet, and pellucid, as those of Chios, Lesbos, Falernum, and the Mountain-Wine of Tmolus; for all these generate a laudable and moderately thick Blood. *Idem, Cap. 4.*

ALIMENTS which generate a VISCID JUICE.

Foods generating a viscid Juice are, Wheat that is ponderous, dense, and yellow in its inner Substance; but the light, thin, and of a white Substance, has less of this Property. Simila also and Alica are very viscid Food, as likewise Tendons, and the nervous Extremities of Muscles, the Parts about the Lips, the Tongue, all Swine's Flesh, and Lamb, the Seed of Sesamum, Bulbi, and fat Dates. *Idem, Cap. 5.*

ALIMENTS generating CRUDE HUMOURS.

Green Dates so fill the Body with crude Humours, as to cause a Shivering in those who eat them, which is difficult to remove. Turneps too freely eaten; testaceous Animals of the Water, who have hard Flesh, and have lost all their salt Liquor by too much Boiling; those you call *soft*, as the Polypus, and Cuttle-Fish, and the like, with the cetaceous Kind; the Ventricle, Intestines, and Uterus of Quadrupeds; hard Glandules boiled, four Milk, Cheese, Bread fried in a Pan, Lupines, Grapes that burden the Stomach; all these Foods generate a crude Juice, and fill the Body with raw Humours. *Idem, Cap. 6.*

ALIMENTS generating COLD HUMOURS.

They who feed on Cucumbers to a Satiety must of Necessity, and by Order of Nature, fill their Bodies with cold Juices, which are not easily converted into good Blood. The like are generated by the Bellies, Intestines, and Uterus of Quadrupeds, by four Milk, Mushrooms, unripe Apples, and Bulbi. *Idem, Cap. 7.*

ALIMENTS generating PHLEGM.

Phlegm, or a merely pituitous Juice, are generated by the nervous Parts of Animals, Glandules, boiled Lamb, the Mushrooms called *Amanita*, testaceous Fish whose Flesh is soft, unripe Apples. *Idem, Cap. 8.*

ALIMENTS generating a MELANCHOLY JUICE.

Beef, and Goat's Flesh, but especially that of a He-goat, and Bull's Beef, generate a melancholy Juice; much more the Flesh of Asses, Camels, Foxes, Dogs, Hares, Wild Boars, the Flesh of terrestrial Animals salted, and their Milks. Of Sea-fish, the Tunny, the Whale, the Sea-calf, the Sea-dog, and all the cetaceous Kind, produce the like Humour. To these we may add Snails, Cabbage, Buds of Trees pickled, as those of the Lentisk, Turpentine-tree, Bramble, and Dog-rose. The Pulp of an Artichoke and Lentils are very melancholy Food. Of the same Quality are Bread made with Bran, and such as is made of Typha, and other coarse and bad Sort of Grain; so are green Wheat, Aphace, Vicie [Kinds of Vetches] and thick and black Wines. *Idem, Cap. 9.*

ALIMENTS generating a BILIOUS JUICE.

The Juice of the Artichoke is bitter, and rarefies the Bile; it is best therefore to eat the Artichoke boiled. Honey also easily changes into Bile in hot Bodies; which is also the Case with

with all sweet Wines, and sweet Food, which supply Matter for the Generation of Bile. *Idem*, Cap. 10.

ALIMENTS generating an EXCREMENTITIOUS JUICE.

Wood-Pigeons, Geese, except their Wings, all Viscera, spinal Marrow, Brain, Birds that live near Marshes, Pools, and Lowlands, Chiches, green Beans, Egyptian Beans, Pigs just farrowed, and the Young of all Animals newly fallen from their Dams; Animals that lie at Rest; Fish that live in Rivers and standing Lakes, and delight in Mud, and all Sea-fish of the cetaceous Kind, generate all of them a foul and excrementitious Juice. *Idem*, Cap. 11.

ALIMENTS void of EXCREMENTS.

The Necks, Tails, and Wings of Birds, the Flesh of wild Quadrupeds, and such as use dry Places, are void of excrementitious Matter. *Idem*, Cap. 12.

ALIMENTS full of NUTRIMENT.

The Flesh of Swine, bred up and fattened by Hand, nourishes above all other Eatables. The Brains of Oxen, their Testicles, Heart, spinal and other Marrow, the Wings of Geese, and more the Wings of Hens, the Bellies of all Birds, Snails, especially after two or three Boilings; all these afford abundant Nutriment. Of testaceous Fish those whose Flesh is hard, as Cockles, the Purple Fish, Whelks, and others of the like Sort; also the Kinds of Lobsters, Cray-fish, Crabs, Shrimps, and such like, with those called *soft*, as Polypuses, the Kinds of Cuttle-fish, and the like, nourish much; of the cartilaginous Kind, the Cramp-fish, and the Weafs, or Old Wife, nourish moderately; the Thornback, Maid, and Skate, more than these, and the Mullet and Sea-gudgeon less. Milk that is thickest nourishes more than the thinner. Of Bread made of Siligo or Simila, the former nourishes most, and next to these what is mixed with Bran. Boiled Wheat, Simila, Alica, Beans, generate Flesh not firm and close, but of a lax Texture. Chiches and Kidney-beans nourish more than Beans, and Ochri than Fenugreek. Kidney-beans nourish as much as Pease, Lupines, Chesnuts, Lentils, sweet Dates, rich and sweet Grapes, Acorns, a Sort of Turneps, called *Naveus*, and Bulbi, are all very nourishing, especially after two Boilings. Honey clarified is proper not only for Nourishment, but for the Distribution of the same; and so is Hydromel well boiled. All Wines nourish in Proportion to their Thickness; therefore red and thick Wines are best qualified to breed Blood; next to these are the Black, Sweet, and Thick, where these Properties unite as before, and after them the Red, Thick, and Astringent at once. Wine that is white, thick, and austere, is less nourishing; and Wine that is both white and thin, least of all. In short, all Foods of a thick Juice, if they are well concocted, afford much Nourishment. *Idem*, Cap. 13.

ALIMENTS which yield little NUTRIMENT.

The extreme Parts of Animals nourish little; which Property belongs also to the Uterus, Belly, Intestines, Tail, Ears, Feet, and Suet. Birds nourish less than terrestrial Animals; the Flesh of old Animals nourishes less than while they are growing. The Aliment that Fishes afford, breeds a thinner Blood, as not being in a sufficient Quantity, and soon digested. Of testaceous Fish, such as have soft Flesh, as Oysters, nourish little. Barley-bread, howsoever made, nourishes less than any other; so does the Polenta that is made of it. The same may be said of Bread mixed with Bran, or any other coarse Ingredient, and of Loti, Amylum, Maza made of Barley, Polenta, Oats, Millet, but especially Panic, Rice, green Beans, Poppy-seed, Linseed, Clary, Hips, Juniper-berries, Myrtle-berries, Almonds, Pistaches, Plums, Peaches, Apricots, Olives, especially ripe, Hassle-nuts, but especially the largest Sort of Walnuts, Jujubes, the Fruit of the Cornel-tree, Blackberries, the Fruit of the Strawberry-tree, Zizypha (a Sort of Jujubes) common Walnuts, Winter-cherries, Capers, especially pickled with Salt, Cabbage, Beets, Docks, sharp-pointed Docks, Purslane, Night-shade, Radishes, Turneps, Mustard, Cresses, Pellitory of Spain, all young Shoots of Plants, Parsneps, Carrots, Carraway Root, Onions, Garlick, Leeks, Vine-leeks, eaten raw, afford no Nourishment, and very little after two or three Boilings. Pomegranates nourish little; as for Pears, especially the larger Kinds, I have little to say of them. Gourds afford some Nutriment, as do dried Raisins, which are austere and not fat.

Of a middle Kind between Foods that nourish much and those which nourish little, are Kidney-beans, Birds-pease, wild Vetches, Chiches, and Figs, which last give but a small Matter of Nourishment, and contrary to that of other autumnal Fruits, for they generate a lax Kind of Flesh, as well as Grapes. All Eatables that are endued, in an eminent Measure, with some medicinal Quality, which they lose in Roasting, Boiling, or any other Way of Dressing, afford but a small Pittance of Nu-

triment to the Body, after they are thus prepared, and none before. *Idem*, Cap. 14.

ALIMENTS of GOOD JUICE.

Among the vast Variety of Things we feed on, there is scarce any of better Juice than Milk. The best Milk is what is just drawn from sound Animals. Poached Eggs are a Meat of good Juice. The best are those of Hens and Pheasants, and the worst are those of Geese and Ostriches. Birds and Fishes are almost all of them reckoned to be of good Juice, except such as live in and about Marshes, and Pools, and muddy Streams, especially if the Water comes through some City, where it receives all the Filth of Baths, Kitchens, and common Sewers; or runs by some Fuller's Yard, whence it comes impregnated with the Washings and Scourings of dyed Cloaths. It is safest therefore to eat Fish that come from the Sea, where there is no Mixture of fresh Water. Such are Fish that live in the Sea, and about Rocks, for in Goodness of Juice, as well as Deliciousness of Taste, they far exceed the rest. As for such as use both Waters, as the Pollard, the Sea-wolf, the Cod, the Sea-gudgeon, Lampreys, Crabs, and Eels, you are first to inquire where they were caught, and then to judge of them by their Taste and Smell. Fish that live in impure Waters, though fatter than others, are ill tasted, and stinking, and mucous, whence they soon putrefy. And you may easily know by your Senses, that Fish are better or worse according to their *Aliment*. For Instance, the worst of all Mulletts are such as have fed upon Crabs; the Flesh of others is hard indeed, but of no ill Juice. The Black-cap, Turbot, Bream, Sole, Plaice, and Sea-lizard are of a middle Nature between such as have tender and such as have hard Flesh, and they afford very good *Aliment* to those who use no Exercise, or are of a weak Constitution; but for sound and healthy Bodies, soft and friable *Aliment* is most proper, and generates the best of all Juices. Quadruped Animals, if well digested, create very good Blood, especially such as are of good Juice, as the Swine in particular; for Pork, both for Savour and Concoction, is a most excellent Kind of Flesh. The best is of a middle-aged Hog, for after that Time the older the worse he grows; and the Flesh of newly farrowed Pigs is too humid, and generates Phlegm in Abundance. The Dug is of good Juice. The Liver, the Parts about the Lips, the Gristle of the Ears and Snout, and the other Extremities, the Intestines, the Uterus, and the Tail, are not of so good a Juice as the rest. The Glandules are next to the Flesh in Point of Nourishment. The Heart is of no bad Juice, the Feet are better than the Ears and Snout; for a Cartilage of perfect Animals can never be concocted, but while it is in Growth, provided it be well broken and chewed in the Mouth, it admits of Concoction. In proportion as the Flesh of other Quadrupeds is exceeded by that of Swine, their extreme Parts are to be accounted inferior to those of that Animal. The Brain of winged Animals far exceeds that of Quadrupeds. The Flesh of wild Animals is of better Juice than that of tame. Bread pure and well made is of good Juice; Alica, Ptisan well boiled, Beans, and Chesnuts are of no ill Juice. Ripe Figs, ripe Grapes hung up, are not to be condemned. Dried Figs, speedily distributed, are of good Juice, but retained long in the Stomach turn to bad Juice, and generate Lice. Eaten with Walnuts they are a very good Kind of Food; but Figs, whether green or dried, eaten with any Thing besides Walnuts, are hard of Digestion. Among Greens, Lettuce breeds good Blood, next to that is Endive. Fragrant Wines are of good Juice; the best are those of Falernum, especially the sweet Sorts, those of Chios, and the sweet yellow Mountain Wine of Tmolus. *Ibidem*, Cap. 15.

ALIMENTS of BAD JUICE.

All *Aliments* of bad Juice are not of the same Kind, for one Sort is cold and phlegmatic, another hot and bilious, and a third atrabilious. My Advice is to abstain from all Meats of bad Juice, however easily concocted in some Stomachs. For the bad Juice they generate is collected, and lies hid a long Time in the Veins, and, upon the least Occasion of Putrefaction, gives Rise to malignant Fevers.

Meats of bad Juice are Mutton and Goats Flesh, because of their Acrimony. The Flesh of He-goats is worst, next that of Rams, and next to this is Bull's Beef. Of all Kinds the Flesh of the castrated is the best, and that of old Animals the worst. Hare generates a thick Kind of Blood, but is however to be preferred to Beef, or Mutton, or Venison, which is of as bad a Juice as either of the foregoing. The Kidnies and Testicles of old Animals, except the Testicles of old Cocks, are of bad Juice. The Brain, spinal Marrow, Heart, Milt (though Hog's Milt least) all Viscera, fried Eggs, old Cheese, Mushrooms, and Funguses, called *Amanite*, are of bad Juice; and the safest Way is to avoid all other Sorts of Mushrooms. Fenugreek, Lentils, Tropa, [a Grain much like Rye] Oats, and Bread made of them, are of no good Juice. Olyra is as much in-

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ferior

* Swines Flesh may be agreeable to some Appetites, and does not seem difficult to digest, but it certainly supplies an excessive bad Nourishment.

ferior to Wheat, as it exceeds Tiphā and Oats. Panic, Millet, and other like Grain, contain no good Juice. Of Fish, the Weaver, Gurnard, Hound-fish, Scorpion-fish, Banstickle, Mulletts, Ruffs, and all of the cetaceous Kind, are of bad Juice. All Summer-Fruits are of bad Juice, but Figs less than others. But dried Figs, if too freely eaten, breed no very good Blood, as appears from the Plenty of Lice which is the usual Consequence. Unripe Apples and Pears, and the Fruit of the Turpentine-tree are of bad Juice; and so are Artichokes, especially when they are hard, with Cucumbers, Pumpions, and Melons, but these last are not so bad as the rest. The Gourd is better than all of them, though this too, if it happens to corrupt in the Stomach, yields Abundance of bad Juice. Of Greens there is none of a good Juice; Lettuce, Endive, and Mallows are a Mean between Good and Bad; next to these are white Orache, Purslain, Beets, and Dock. The Roots of Gardeners Ware, such as have an acrid Taste, as Onions, Leeks, Garlick, Radishes, and Carrots, are of a bad Juice; of a middle Kind are the Roots of Cuckow-pint, Turneps called *Naveus*, and the Roots of Carraway. Basil is very bad Juice, as well as raw Turneps, Cabbage, and Bulbi, not well boiled; Leeks, Onions, Garlick, and Vine-leeks, after two Boilings, lose their bad Quality. But all Greens that are called *Wild*, are of very bad Juice, as wild Lettuce, Gum-succory, Shepherd's Needle, Chervil, Seris, and wild Succory. Thick, fetid, and austere Wines, such as is imported from Bithynia, in large Vessels, and at a low Rate, are of bad Juice; for what comes in smaller Vessels is neither good nor bad, but a Mean between both. *Ibidem*, Cap. 16.

ALIMENTS of EASY CONCOCTION.

Food of easy Concoction are, Bread made as it ought to be, all Rock-fish, the Sea-gudgeon, the Cramp-fish, and the Turtle. All Kinds of Birds are easier of Digestion than Quadrupeds, especially the Partridge, Wood-cock, Pigeons, Hens, Dung-hill Cocks, Pheasants. The Wings of Geese are easy to be concocted, but those of Hens are easier; and, in short, the Wings of those that are young and well fed, are of excellent Concoction, but very bad if lean and old. Such as are fed on Whey, the Livers of Geese, and others fattened after the same Manner, with the Testicles of Dung-hill Cocks, are very easy to be digested; so is Pork. Veal is easier of Concoction than Beef, and Kid than Goat, and the Flesh of growing than of declining Creatures. Animals that live in dry Places, are easier to be concocted than such as live in moist, and Walnuts than Hasle-nuts; Bulbi, after two Boilings, are easily digested, as well as poached and forbile Eggs, Lettuce, Endive, and Mallows, and boiled Gourd too, when it is not corrupted in the Stomach. Sweet Wine is more easily concocted than sour; and in general of Things equally wholesome, the most agreeable passes best off the Stomach. *Ibidem*, Cap. 17.

ALIMENTS of DIFFICULT CONCOCTION.

Goats Flesh, Beef, and Venison, are hard of Concoction; but the hardest is the Flesh of a He-goat, the next that of a Ram, and Bull's Beef takes the third Place. The Flesh of old Animals, particularly Swine, is fibrous and dry, and therefore exceeding hard to digest. The Ventricle, Intestines, Uterus, Heart, Testicles of adult Animals, and Geese, except their Wings, are difficult of Concoction. The Flesh of Wood-pigeons, Starlings, Blackbirds, and small Birds is hard, that of Ducks and Turtle-doves is harder, but that of Peacocks and Bussards hardest of all. The Gizzards of all Birds are hard of Digestion; and they therefore who eat the Gizzard of an Ostrich, or of a Cormorant, as imagining it will strengthen their digestive Faculty, impose upon themselves, for neither is such Meat digested without much Difficulty, nor has it the least medicinal Tendency towards that End they propose from it. Snails are hard of Digestion, and so is sour Milk, especially to a cold Stomach. Old Cheese has the same Quality; but what is new, or made of sour Milk, is accounted better. The Flesh of the Purple-fish, Whelks, and other testaceous Kinds, whose Substance is hard, are difficult of Concoction. Also the Kinds of Lobsters, and Crabs, and others of that Kind, Polypuses, the Kinds of Cuttle-fish, and all those of soft Flesh, Thornbacks, Maids, Skates, Weaver, Gurnard, Hound-fish, Scorpion-fish, Banstickles, Mulletts, Ruffs, Stock-fish, Congers, Sea-eagle, Eggs roasted, boiled, fried; boiled Wheat, Tragus, coarse Meal (which is harder of Concoction than Polenta) Tiphā, Oats, Bread made of them, Beans, Pease, Kidney-beans, small Chiches, Chiches, Rice, Lupines, Panic, Millet, and such like, Lentils, Colts-foot, Sesamum, Hedge Mustard, Chestnuts, Acorns, Apples, Pears, Figs, unripe Services, acid and austere Grapes, all Dates, Carobs, Citrons (the outer Rind of which, taken medicinally, helps Concoction, as do most Acrids) Basil, Turneps, and Bulbi, too raw, Parsnep, Carrot, Carraway-root, all Roots of Greens, and Greens themselves, except Lettuce and Endive, as well as all the foregoing, belong to the same Class. *Ibidem*, Cap. 18.

ALIMENTS AGREEABLE and CORROBORATIVE to the STOMACH.

Things grateful to the Stomach are, austere Dates, Quinces, Olives pickled with Salt (but the best are those prepared with Vinegar) austere Raisins, Grapes preserved, Walnuts more than Hasle-nuts, and especially if eaten with dried Figs. All prickly Things are moderately grateful to the Stomach. Of this Kind are Carduus, the Distaff-Thistle, St. Mary's Thistle, the Teasel, the Tragacanth, the Artichoke, the Root of Skirret boiled, Chervil, and Venus's Comb, which raw or boiled is wonderfully grateful to the Stomach; it will not bear much Boiling. Add to these Mustard, Radish, Turneps, Cresses, Pellitory of Spain, Asparagus, Butchers-broom, the Dwarf-laurel, Barberry-shrub, and Bryony. The Bulbi and Capers, pickled with Salt, excite an Appetite; the outer Rind of a Citron, taken medicinally, corroborates the Stomach. Austere Wine, especially warm, is good for an hot Intemperies of the Stomach. Of medicinal Things, Wormwood and Aloes corroborate the same Part. *Ib. C. 19.*

ALIMENTS DISAGREEABLE to the STOMACH.

Juniper-berries are hurtful to the Stomach, and much more the Fruit of the Cedar, Flower-gentle, and the Seed of the Vitex. Beets are so disagreeable to the Stomach, that the plentiful Eating of them causes a gnawing Pain in that Part. Add Dock, Basil, Turnep too raw, Blites, white Orache, except it be eaten with Oil, Vinegar, and Garum. Fenugreek and Sesamum subvert the Stomach. Milk turns acid in cold Stomachs, and nidorous in hot; hence it is justly forbidden in Fevers. Milk drank with Honey excites Vomiting. Pumpions not well concocted usually bring on bilious Disorders. They are proper to provoke Vomiting, before they are corrupted, for if a Person feeds plentifully on them, and takes no Aliment of a good Juice afterwards, they will be sure to give him a Vomit; the same Property belongs to Melons. All Brains, and Marrow of Bones are ungrateful to the Stomach, and create Nauseas. Black and austere, as well as thick and new Wines, easily turn acid, and excite Vomiting. Of medicinal Things Southernwood, Seawormwood, and Aphronitrum, are disagreeable to the Stomach. *Ibidem*, Cap. 20.

ALIMENTS HURTFUL to the HEAD.

Things noxious to the Head are Mulberries, Blackberries, the Fruit of the Strawberry-tree, of the Cedar, Hemp-seed, the Root of Spignel, all Sorts of Dates, Rocket, Fenugreek, and the Seed of the Vitex. Wine that is yellow and austere hurts the Head, and affects the Mind, more than what is black and austere. Fragrant Wine also flies to the Head, but this Wine causes no Pain in the Head, nor stimulates the Nerves; and what they call *ἀναισθητικόν* even easeth the Pain of the Head, which is caused by the Juices in the Stomach. Milk is not proper for the Head, unless it be a very firm one. Water in which Grapes have been soaked causes Head-ach. *Id. C. 21.*

ALIMENTS which cause no INFLATIONS.

Pease, Kidney-beans, Cummin, the Root and Seed of Lovage, the Seed of the Vitex, and the Fruit of Hemp, cause no Inflation. To these we may add, what would unprepared cause Inflation. Beans boiled or stewed, Bulbi much or twice boiled, and eaten with Oil, Garum, and Vinegar. Clarified Honey, and Oxymel discuss Inflation. Barley Bread, however made, is inoffensive in this Respect. Of a middle Nature between Aliments which cause Inflation, and such as cause none, are Kidney-beans with some Sorts of small Pease and Chiches. *Id. Cap. 22.*

ALIMENTS which cause INFLATIONS.

Chiches, Lupines, Kidney-beans, Panic, Ochri, Millet, and the like, inflate. Beans hulled are more apt to cause Inflation when cooked by themselves than otherwise. Maza made of Polenta generates Flatuosities; but if it be well beaten and worked up, it moves the Belly, especially if some Honey be mixed with it. Malt Liquor and all Juices cause Inflation, especially the Cyrenean, that of Satyrion, with the Juice and Root of Silphium. Figs cause a short Inflation, because they soon pass through; but when thoroughly ripe, they can hardly be said to do any Harm, no more than dried Figs. Green Dates have much the same Effect as Figs, or raw Turneps. Milk soon breeds Flatuosities in the Stomach, as well as raw Bulbi, or Honey not well purged. Sweet Wines cause long Flatuosities; but such as are both sweet and austere, and are neither distributed or digested, but remain a long Time in the upper Belly, there generate Inflation; Mustum also is a very flatuous Liquor. *Id. C. 23.*

ALIMENTS of a DETERGENT, INCISIVE, and APERITIVE QUALITY.

Detergents are Pisan, Fenugreek, Melon, Pompion, sweet Raisins, Beans, Chiches, especially the black Kind, which is also

also an excellent Lithontriptic. Capers are of pretty fine Parts, but pickled in Salt, they become a good Deterfive, and cleanse the Stomach of Phlegm, and open Obstructions of the Liver and Spleen; for which Purposes they are to be taken in Oxymel, Vinegar, or Oil, before any other Food. The Juice of Beets has an absterfive Faculty, and frees the Liver from Obstructions, and especially when eaten with Vinegar and Mustard. Docks too and Nettles belong to this Class, with the Roots of Wake-Robin and Asphodel, which are of fine Parts. Bulbi are deterfive, attenuating, and aperitive. On this Account, the tender Shoots of Asphodel are prescribed as a sovereign Remedy in the Jaundice. Onions, Garlick, Leeks, and Vine-Leeks attenuate and cut thick and glutinous Humours; after two or three Boilings these Simples lose their Acrimony, but retain their attenuating Virtue. Whey attenuates a thick Humour; Figs absterge; whence in nephritical Disorders much Gravel has been voided after Eating of Figs. Dried Figs attenuate and incide; whence they are great Cleansers of the Reins. Juniper-Berries cleanse the Liver and Reins, and attenuate gross and tenacious Humours in those Parts. Almonds absterge and attenuate, and scour the Viscera, and cause a free Expectoration. Pistach-Nuts are good to strengthen the Liver, and to cleanse it of those Humours which obstruct its Passages. Radish has an attenuating Virtue. Honey is of the more attenuating Nature, as it is collected from hot and dry Plants; so that even Hydromel is apt to provoke Spittle. Oxymel promotes the easy Discharge of other Humours besides the thick and glutinous, and cleanses the Viscera without Pain or Sickness, and has an admirable Effect in Diseases of the Breast and Lungs. Such as abound with thick Juices ought to drink thin Wines, and if distempered besides with cold Humours, are to chuse Wine that is old, thin, and acrimonious. Small Wine promotes the Discharge of Humours from the Lungs, for it corroborates, and dilutes the Juices, and is moderately incisive. Sweet Wines are proper, in acute Distempers, as a Peripneumony and Pleurisy, after a Concoction, to provoke Spitting. *Idem, Cap. 24.*

ALIMENTS which cause OBSTRUCTIONS.

Milk that contains much Whey can do no Hurt, though you feed on it never so long; but the long Use of Milk that has little Whey, and much Cheese in it, is dangerous; for it is bad for the Kidnies that are subject to the Gravel, and promotes Obstructions of the Liver, when it is predisposed to them. Dates are hurtful in Inflammations of the Liver and Spleen, as well as Figs, not from any peculiar Property, but from the Nature of sweet Things, for all sweet Things are hurtful in Obstructions, or scirrhus Disorders of the Liver and Spleen. In their own Nature they can neither do much Good nor Hurt, but in Conjunction with deterfive and inciding Simples they may have a very good Effect. Hydromel is hurtful to the Viscera under a Tumor, Scirrhus, Oedema, or Inflammation, because Honey of its own Nature is soon changed into a bilious Juice. The Seeds of Poppy stop Evacuations from the Breast, and rich and sweet Dates cause Obstructions, and the green more. All Sorts of Cakes made of Honey, Meal, and Oil, and those made of Simila, are of an obstructing Nature, and augment the Spleen, and generate Gravel in the Kidnies; wheaten Meal wetted with Milk has the same Effect. Alica also is hurtful to such as labour under Obstructions of the Liver, and are subject to the Gravel in the Kidnies. Sweet Wines are obstruct, and augment Tumors in the Viscera. *Id. C. 25.*

ALIMENTS of SLOW PASSAGE.

Aliments slow in passing are all such as are made of Itria [a Sort of Cheesecakes] and Simila, fried Beans, the finest Bread, Lentils pilled, Brain, spinal Marrow, Liver, Heart, boiled Wheat, boiled Eggs, roasted more, and much more fried; Lupines, Pease, Sesamum, Hedge-mustard, Acorns, Apples, unripe Pears, the Fruit of the Carob-tree, sweet Wine, and more what is austere and black without any Sweetness; thick Wines, and all new Wines. Water is of very slow Passage. *Idem, Cap. 26.*

ALIMENTS EASILY CORRUPTED.

Peaches, Nectarins, Apricots, are easily corrupted, and so are all Summer Fruits, which being of a humid Nature are easily vitiated in the Stomach, if they are not soon discharged thence. Therefore they ought to be eaten before all other Meats, for by this Means they are soon discharged, and carry off other Things with them; but if they are eaten last of all, they corrupt, besides themselves, the rest of the Food. *Idem, Cap. 27.*

ALIMENTS NOT EASILY CORRUPTED.

Of this Property are the Chemulæ [a small Sort of Cockles] the Purple Fish, Whelks, and all testaceous Animals, whose Flesh is hard, and which are usually prescribed to such as, by Reason of ill Humours, corrupt their Food. They boil them twice or thrice in the best Water, and take them out into

another clean Water as soon as they are thought to be seasoned. To this Class also belong all Sorts of Lobsters, Crabs, Shrimps, and others of that Kind. *Idem, Cap. 28.*

ALIMENTS that LOOSEN the BELLY.

Lentils and Cabbage excite to Stool. Of Fishes, almost all the testaceous Kind are endued with contrary Qualities; for the solid Part of their Substance is slow in passing, and binds the Belly, but their humid Part provokes Excretion downward. Therefore if you boil Lentils or Cabbage, or any of the Animals before spoken of, and season the Decoction with Oil, Garum, and Pepper, and then let any one drink of the same, you will soon see the Effects of a Cathartic: Nay the very Broth of the Sea Hedge-hog, of all small Shell-fish, and of an old Cock, moves the Belly. Whoever has a Mind to reap the like Benefit from Cabbage, must take it out of the Pot, with the Liquor in which it is boiled, and clap it into Oil and Garum; it must not boil long. Coarse Bread excites to Stool, both on Account of the Quantity of Excrement it creates, and of the deterfive Quality of Bran. The Juice of Fenugreek, boiled with Honey, is good to purge off all corrupt Humours from the Intestines, and by its absterfive Virtue stimulates them to Excretion, but the Quantity of Honey must be but small, for Fear of a biting Sensation. Salted Olives eaten in Garum, before other Food, have a cathartic Virtue, as well as the Juice of testaceous Animals and small Shell-fish, which some pickle for that Purpose with Oil, Wine, and Garum. Milk, the more liquid it is, the more it loosens the Belly. Whey is a great Opener, and you may sweeten it with as much of the best Honey as the Stomach can take, and as much Salt as will make it palatable, and if you desire it should work more effectually, you must add more Salt. The Flesh of very young Animals, and their Extremities easily pass through the Body. Of cartilaginous Fishes, the Cramp-fish and Weafs are moderate Openers. Beets, Docks, Nettles, new Cheese with Honey, white Orache, Blites, Gourds, Pompions, Melons, Figs, dried Figs, sweet Grapes, especially when full of Juice, Mulberries taken on an empty Stomach, and before other Food, very quickly pass through the Body, and make Way for the rest: But eaten after a Meal, if they meet with a vicious Juice in the Stomach, they, as well as Gourd, are very soon corrupted. New Walnuts loosen the Belly, and so will dry ones, if first soaked in Water, as well as green ones. Plums in their full Moisture are loosening; dried Plums infused in Hydromel that tastes much of the Honey, though eaten alone, are a sufficient Purge, and much more if the Hydromel be drank with them. You will be satisfied of their Virtue, if you drink sweet Wine some Space of Time after taking them, and defer your Dinner. Mulberries, Cherries, Apricots, Peaches, and all moist and aqueous Things, and, in general, all such as are no way remarkable either for Taste or Smell, if the Belly be free for Dejection, easily make their Way through the Body: But if the Belly be otherwise disposed, they stay behind the rest, nor excite the least Motion, because they have no Acrimony, nor nitrous Quality.

The Substance of those last *Aliments* is, in some Sort, a Medium between such as bind and such as loosen the Belly, inclining very little on either Hand, when they do not meet with a Body very ill disposed for Excretion, or strongly inclined to Distribution. Thus sometimes the Belly is bound, and Hydromel, when there is a quick Distribution, does not only excite the Belly to Excretion, but carries off other Foods mixed with itself. If the Distribution be slow, it immediately stimulates towards a Motion, because it has somewhat of Acrimony. Even Honey itself, sucked from the Comb, loosens the Belly; and Hydromel that has had little or no Boiling passes off without Distribution. Oxymel more gently stimulates the Intestines. Sweet Wine is somewhat opening, and Raisin-wine works more effectually.

ALIMENTS of a MIDDLE NATURE between PURGATIVES and EMOLLIENTS.

Aliments of this Kind are, Mercury, dressed alone, or with other Greens, and first eaten, and then the Pottage drank. Polypody also and Herb Terrible, are of the same Nature, and the Seed of this latter taken to the Quantity of a small Spoonful purges black Bile. The like Virtue is in the Seed of Holy Thistle, bruised and taken in Hydromel or Cock-broth, or mixed with Almonds, Nitre, Anise, Honey, and dried Figs. *Oribas. Synop. L. 4. Cap. 28.*

ALIMENTS which BIND the BELLY.

Austere Dates and Raisins, Mulberries, Blackberries, bind the Belly; and, more than these, Hips and Sloes. Apples of an astringent Taste are binding, but acid ones meeting with thick Juices in the Stomach, incide and separate them, and by that Means loosen the Belly; but if they are received into a clean Stomach, they render it more bound. Apples of a sweet Juice, without Acrimony, are easily distributed; but acid ones are unfit for Distribution, and the watry and insipid are void

void of Properties, and good for nothing. What has been said of Apples may be applied to Pomegranates and Pears. Milk boiled till the Whey be consumed is not loosening, for if you quench fiery Stones in Milk, till the Whey be evaporated, the Remainder is an Astringent, and usually prescribed when the Intestines are afflicted with a growing Pain from the Acrimony of their Contents. This Intention is better answered by quenching red-hot Globes of Iron in the Milk. But Milk so prepared easily curdles in the Stomach, and therefore it is usual to put Honey and Salt in it, though Water is better. Nor is it without Reason that we pour Water in the Milk, when the serous Part is consumed, for it is not the Humidity of the Whey, but the Acrimony that infests the Intestines, which we would get rid of. The several Kinds of Lobsters, Crabs, Shrimps, and such others as are covered with a soft Shell are binding, though less than such as are inclosed in a hard Shell. But the former have a salt Humour, and if this be left behind them in the Water, they prove no less astringent than Oysters and other hard-shelled Fish. Lentils and Cabbage twice boiled, to the Consumption of their Juice, bind the Belly. When we intend to stop a Looseness, we boil Cabbage moderately, then throwing away the first Water, pour other hot Water to it, and boil it afresh till it be dry, taking Care that no Air or cold Water come to it, for there is no making of it quite dry, boil it never so much. Pilled Lentils lose their strong astringent Quality, and are of no Efficacy in a Flux of the Stomach; but if you bruise them, and give them two Boilings, and after throwing away the first Water, put a little Salt and Garum, with some palatable Astringent, to it, you will have prepared a very pleasant and wholesome Food and Medicine. Polenta drank in austere Wine, and Rice, are Binders; and so are Panic, Millet, fried Meats, Hares Flesh, austere Wine, and yellow austere Wine. *Oribas. Collect. Medicin. L. 3. C. 31.*

ALIMENTS of an ACRID and HEATING QUALITY.

Heaters are boiled Wheat, Bread made of Wheat, Tiphia, Oats, Fenugreek, Juniper-berries, sweet Dates, sweet Apples, Sesamum, and Hedge-mustard; these provoke Thirst by their heating Quality. To these we may add Hempseed, sweet Grapes, sweet Raisins, Mallow (which heats moderately) Smallage, Alexanders, Rocket, Garden and Horse-radishes, Mustard, Cresses, and Pellitory of Spain.

Food of both an acrid and heating Nature are Parsnep, Carrot, Carraway; these are manifestly hot. Garlick, Onions, Leeks, Vine-Leeks, are sufficiently acrid, but after two or three Boilings they lose their Acrimony. Old Cheese is hot, and excites Thirst. Sweet Wine is moderately hot, and has the same Effect. The deep Yellow is hotter than the Black, but the bright Yellow is the hottest of all; the next in Degree of Heat is the deep Yellow, then the Red, next the Sweet, and lastly the White, which heats least of all; but all Wines very long kept are sufficiently heating. *Id. Cap. 32.*

ALIMENTS of a REFRIGERATING QUALITY.

In the Number of Refrigerants are Barley, howsoever prepared, Millet, Panic, Mushrooms, boiled Gourds, Melons, Cucumbers, Plums, austere and acid Grapes, and austere Raisins. Astringent Apples are of a cold and earthy Juice, but the Juice of acid ones is cold, and of fine Parts. The watry and such as have no remarkable Property, Pears, and Pomegranates, and the Fruits of many other Trees, especially such as will not endure to be kept, are of this Class. Astringent Dates have a cold Juice, and so have Lettuce and Endive, though in a moderate Degree, Purslane, Poppy-seeds, which are soporiferous, and hurtful if too freely taken, but good for thin Distillations from the Head, for which Purpose the white is best. Myrtle-berries refrigerate, but are no Astringents, being endued with an acrimonious Quality. Solanum is an effectual Refrigerant and Astringent. Water and small Wines are no manifest Heaters, and therefore may the more safely be given in Fevers. Wine that is white, austere, thick, and new, manifestly refrigerates, as well as Vinegar, which being of fine Parts, is therefore more penetrating into the inward Parts than other Refrigerants; on which Account it is an Enemy to the Nerves. Of a middle Kind of Nature between Heaters and Refrigerants are Bread made of the Fruit of the Lote-tree, Amylum, and Grapes. *Id. C. 33.*

ALIMENTS of a DRYING QUALITY.

Lentils and Cabbage are Driers alike, and for that Reason dull the Sight, except the whole Eye be moist; but the young Buds, or Coleworts, are less drying. Of other Greens the Stalk is the driest Part. But the Contrary is true of the Radish, Onion, Mustard, Cresses, Pellitory of Spain, and all those whose tender Shoots are acrid. Polenta and the Seed of the Vitex are Driers. Vetches twice boiled, and often thrown into fair Water, make a drying Food; the best Sort is the White. Roasted and boiled Meats yield a drier Aliment, boiled Meats a moister, fried Meats are of a middle Quality. Whatever is most seasoned with Wine and Garum is the driest, and what-

ever has least of these, and most of Desfrutum, and is boiled in simple and pure white Broth is the moistest, or if it be boiled only in pure Water it is moister than the first. But Seeds, Greens, and Plants differ much according to the Ways of seasoning them, and though they are all drying, yet they exert more or less of that Quality according to those Ingredients with which they are mixed. *Id. Cap. 34.*

ALIMENTS of a MOISTENING QUALITY.

Ptisan, boiled Gourd, Pompions, Melons, Cucumbers, green Nuts, Plums, the Fruit of the Sycamore-tree meerly moisten without Refrigeration, -except they be eaten cold. Lettuce and Endive moisten too, but in a lower Degree. Purslane, Mallows, Blites, and white Orache, are the most watry of all Greens. Most Fruits are humid, especially such as will not keep. Lettuce, and Poppy-Seed, green Beans, and green Chiches, moisten, Water moistens and refrigerates, but hot Water both heats and moistens. *Id. Cap. 34.*

ALIMENTS NOXIOUS to the HEAD.

The Fruit of the Sycamore hurts the Head, Blackberries cause Head-ach, as do Dates, Rocket, and Fenugreek. Austere Wine of a deep Yellow creates Head-ach, and disorders the rational Faculties, more than black and austere Wine. Fragrant Wines have the same Effect. *Oribas. Medic. Collect. Cap. 51.*

ALIMENTS BAD for the TEETH.

The constant Use of Milk is bad for the Teeth, and causes them to rot, and loosens the Gums. Therefore, before you feed on Milk, wash your Mouth with diluted Wine; but it is better to put Honey in the Milk. *Id. C. 37.*

In treating of the Qualities of *Aliments*, we are to shew first the Nature of each Quality in general, and then to speak in particular of those belonging to the various Kinds of *Aliments*.

Of Qualities some are simple, which seem to belong to the peculiar Nature of *Aliments*, others compounded; some intense, other remiss; some so attuned as to conspire in the same Purposes with the prime efficient or constitutional Quality, others tending a different Way. If we should undertake to speak of Qualities in this Method, a Multitude of Heads would offer themselves. But waving these, and to come directly to our present Purpose:

Of Qualities, with Respect to our Sense, there is the *Sweet*, the *Fat*, the *Acid*, the *Astringent*, the *Salsuginous*, the *Bitter*, and the *Acrid*. If we fancy there are more, we shall find them, on Examination, reducible to one or other of the forementioned. For aqueous Dulcidities come under the general Epithet of *Sweet*, oily Qualities are comprehended in the *Fat*, and the austere and sour are Species of the *astringent* Quality, differing only in Degree. Besides the above-mentioned there are reckoned the *aqueous* and *frumentaceous* Qualities; not that these represent any manifest Quality to our Sense, but on Account of our Familiarity with them, by taking the Word in a large Extent, have obtained that Name. The *Vinous* may be said to be a Mixture of Qualities divers Ways concurring, and admitting of innumerable Distinctions, as it inclines more or less to this or that Quality. The *Frumentaceous* is that Quality, or Property, which belongs to Seeds adapted for Bread, to Pulse, and others of that Kind. The *Aqueous* is inherent in Greens, Herbs, Fruits, and some Roots which make but a faint Impression on our Sense. On this Quality we also bestow the Epithet of *cold*, in a large Sense, comparing it with the just and equal Temperament of our own Bodies. The *dulci-aqueous* Quality, as you may call it, seems to have lost just as much of the cold Quality of simple Water, as it has acquired of Sweetness, though by Comparison with an equal Temperament, it may still be accounted, in some Measure, cold. Both indeed have a Humidity beyond a just Proportion, but the exquisitely Sweet consists in a moderate Temperament, which being intended to a more than just Proportion of Heat, loses as much of a moderate Share of Humidity. The fat and oily are temperate Qualities, and friendly to Nature, and are besides endued with a Power of relaxing the overstrained Fibres; they seem to have the Pre-eminence above the Sweet, in that Concoction is better performed upon them. Both of them by Length of Time acquire much Heat, and lose as much Humidity. The Sweet in Time degenerate into their opposite Quality, Bitterness, when their Sweetness becomes incapable of Increase. The Fat passes into the nidorous, and we have no Name for the Sensation they give us under that State. Things dressed and concocted by an external Fire are in much the same State as those that struggle with and are digested by their native Heat, especially where Acridity is predominant. The acid Quality is among the cold ones, and being of fine Parts has a Power of inciding, and moderately attenuating, and is no less wont to exsiccate. The Austere has a moderate Astringency, and cements, and incrassates Matter, strengthening the loose Parts; and consisting of grosser Parts, refrigerates and exsiccate. This Quality,

Quality, in being rendered more intense, passes into the Sour, which is made up of still grosser Particles, and is a more powerful Dryer. The Salsuginous is hotter than the Sweet, and not much drier than the Fat. It seems to consist in some Measure of fine Parts, which attenuate, and consume superfluous Moisture. Being intended, or increased, it participates of the Bitter, and becomes hot and dry, and prevailing over Salts by its absterfve Faculty. Again, the Acrid is much the hottest and driest of all the Qualities, consisting of fine Parts, which easily intrude into the most profound Recesses, inciding, attenuating, opening Obstructions, and consuming Superfluities.

So much for simple Qualities in general, which being rightly comprehended, compounded ones may easily be understood; for there are a Thousand such, with their Opposites, and distinguishing Characteristics, the accurate Consideration whereof will instruct a Physician to apply them as seasonable Remedies to their Contraries. Nothing appears more evident than this to a Person well versed in the best and most useful of all Arts, who imagines and forms to himself Complications and Distinctions of Qualities and Temperaments, according to what he observes in Herbs, Fruits, and other more simple Bodies, in order to qualify himself for undertaking the Cure of various and complicated Distempers.

OF FRUMENTACEOUS ALIMENTS, and PULSE, with their DIFFERENCES.

The Frumentaceous and other Kinds, contained under the Notion of simple *Aliment*, are by no Means to be considered after the Manner of Qualities, such as those above-mentioned, unless they are found to have something like it in them, but are proved and distinguished, every one, by Concoction, Elization, Density, or Tenuity. Some are defective in Point of Dressing and Seasoning, and by that Means hard and distasteful, and slow and difficult of Concoction. Among Animals, some of a greater Bulk than ordinary are harder, and have more of Earth in them than others, and they differ also in Respect of Health, Age, Diet, and Exercise. And all these are proved by their Suitableness to the peculiar Temperament, for the same Things do not agree with all, but this with that and not with another, Respect being had to the Constitution, and Employment, so far that if a Person be ignorant of these Differences, and how to suit them to their proper Subjects, he will in vain set about prescribing a Regimen.

Since then there is a vast Variety of *Aliments*, and a much greater in the Ways of cooking them, I think we cannot do better than begin with the most common, and what most Mortals feed upon. Wheat then (for this is the most common Food of the human Race) is but one in Kind, but admits of several specifical Differences and Properties, for one Sort is of a deep Yellow, or a denser Substance, or perhaps both; on the Contrary, another shall be white, small, furrowed, or plump. Hence you may infer Variety of Properties and Effects. The deep Yellow, or Fallow, is reckoned the hottest (for among Things of the same Kind this Colour is thought to signify the most Heat). The dense requires most Pains in working and preparing, and yields Plenty of *Aliment*; but the thin and striated owe these Properties to some Defect in their natural Powers. Persons who use Exercise ought to feed on the most solid Wheat, as their Perspiration and Waste of Spirits from all Parts is greater, and for that Reason require the stronger and more solid *Aliment*. But for such as lead an easy Life, and are discharged from Labour and Toil, the lighter Sort is most convenient, and such as is brought to a proper Degree of Maturity; for if this be wanting, it is so far weak and imperfect. Care ought to be taken that it be not tainted with noxious Effluvia from neighbouring Bodies, of which it runs great Hazard when repositied in Granaries, and that it be not mixed with other Grain. And now we are speaking of the lighter Sort, which best agrees with those who lead a sedentary Life, we ought to be somewhat particular. To eat green Wheat moderately, can hurt but moderately, for being now in its humid State, there is no Danger of its Adhesion to the Viscera, but it passeth off without any Damage. The daily Use of it parboiled may have very ill Effects; for the crude and indigested Mass very often sticks to the Viscera, whence as from an impure Spring a Multitude of Crudities are dispersed over the Body. It is much the wholesomest Way to use it thoroughly cleansed, and well boiled, as we usually eat it dressed with Oil and Fat. Of Wheat well ground, the finest Part is called the Flour [*σάρκα*] and the coarsest Part is what they call the Bran. The Meal then is a Medium between them, and the Similago is more solid as well as finer than the Polenta. Of the finest and whitest Part of the Meal they make the Bread called *Siliginous*, from *Siligo*, as the *Similagineous* is made of *Similago*, and the *Furfuraceous* [branny *σποράκι*] after the finer Parts of the Meal are taken away. The *συνκεμαίος* [miscellaneous] is made after the Bran only is cleansed off. All these Sorts are prepared with Salt and Leaven, or without them; and are baked either in Ovens, or heated Pans, or in hot Embers. The first two are called *ἄρτοι*, and *ἁρβαῖτοι*, and the other

ἡγευρία, because in Baking they are hidden in the Embers. I think the most wholesome Way of making them is with Salt and Leaven, and that they are best baked one of the former Ways, that is, in a standing or portable Oven; for they are much the better for being free from Athes, and other Sordes. But the Salt and Leaven are highly serviceable, in consuming whatever is recrementitious, and at the same Time imparting a Sort of Concoction, or more elegant Consistence to the Mass. For unleavened Bread is more difficult of Concoction, and requires much Exercise of Body, which does not comport with their Way of living to whom this Advice is directed. The best Bread then is the *Siliginous*, because it affords the most Nourishment; the next to this is the *Miscellaneous*; the *Similagineous* comes in the third Place, and the worst of all is the *Furfuraceous*, which yields the least Nutriment, passes soonest through the Body, and is easily converted into an atrabilious Juice. As the *Siliginous* consists of the purest Part of the Wheat, so it yields the purest *Aliment* to the Body. The *Similagineous*, as being close and compact, though it generates good Blood, certainly requires a longer Time for Concoction. The middle Sort between them, or the *Miscellaneous*, is most serviceable as well as harmless, for it is not hard of Digestion, like the *Similagineous*, nor affords such an Abundance of Nutriment as the *Siliginous*, and thereby obstructs the Passages. It is to be observed also that Bread differs much in Goodness, according to the Rate of Baking, which ought to be understood of all Eatables that require Dressing. Cakes fried in a Pan made of Meal, Water, and Oil, afford much Nutriment, and that of a solid Kind, but require a very strong Stomach, and are fitter for athletic Constitutions than others, in whom they are apt to breed crude Humours.

Next to Wheat, Barley deserves to be considered, according to the Saying of a certain Author: *Next to Bread of Wheat, give me good Maza* [a Sort of Barley-Pudding]. Barley is less nourishing, and more absterfve, than Wheat, and is besides of a cooling Nature, and exceeds, on that Account, other frumentaceous Fruits. The Cremor prepared of it is very wholesome both for healthy Persons who are of an acrid Temperament, and for feverish Patients, whom it refrigerates and moistens. If to this you add the Cremor of Almonds, they will make together an excellent Kind of Food, light of Digestion, and of good Juice, and endued besides with an attenuating and absterfve Virtue; in short, desirable upon all Accounts. The best Barley is white, and of a good Body, and does not prove itself any Way vitiated by its Smell.

Zea is reckoned among the light Kinds of Food, when thoroughly cleansed, and dressed after the Manner of a Panada. But it generates not the best of Blood, nor affords sufficient Nutriment, much less Strength to the Body; however, it deserves a Place among light Meats. Millet, though like Zea, it nourishes little, yet has an Advantage over it, in that it imparts some Kind of Firmness to the Body, and breeds Flatulencies. Beans, though absterfve and nutritive, generate a thick Blood, and a Multitude of Flatulencies besides, and are therefore, as well as the former, forbidden the Weak and Sedentary. But if Necessity at any Time requires the Use of them, they are best when made into a Gruel, which is more absterfve, and loses most of its Flatulency in the Dressing. But if you add thereto some of the carminative Seeds [*ἀρωμα*] or Honey, you will expel much of their ill Qualities out of them. Kidney Beans are worse, being accounted of a hot and earthy Nature, and Disturbers of the Brain and Spirits, causing unquiet Sleep.

Chiches yield a strengthening and moderately pure *Aliment*, though it be stutuous, and requires a strong Stomach. But the Broth made of these is valued, being absterfve and diuretic, as participating of a salsuginous Quality; wherefore this is wholesomer than the Substance of the Pulse itself. Rice is moderately hot and dry, nourishing, and obstructing the Passages; but if you allow it a sufficient Time to work off and be distributed, it produces no ill Effects. Lentils are accounted the worst Kind of Pulse, generating a thick, earthy, and atrabilious Blood. They bind the Belly, after two, three, or more Boilings, and throwing away the Liquor; but any other Way prepared, are said to increase a Looseness. We shall take out Leave of the Frumentaceous and Leguminous Kinds of Food, with observing in general, that they are accounted best while green, as retaining in that State something of Humidity; but when, by Length of Time, they have wholly lost this Property, they become gross, heavy, and earthy. And as much as juicy Things are preferred to dry, so much are boiled to be valued above raw, and Things prepared before crude and unprepared.

OF GREENS, and AUTUMNAL FRUITS, with their different SPECIES.

We are to observe, in general, that all Greens generate a thin and watery Blood, in Comparison of other *Aliments*, and that they differ from one another in Quality and Goodness of Juice, and in some remarkable Property.

Cabbage, in the first Place, is a Sort of Food, that is of a moderately hot, but more of a dry Nature. If it be boiled,
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and its Juice not exhausted, it loosens the Belly, but if you give it three or four Boilings, or more, still throwing away the Liquor, and then eat it, it has a binding Effect. And this ought not to seem strange, for the Juice of Cabbage is of an abstergive Nature, but its Substance is astringent. It is too apt to breed an atrabilious Humour, and therefore is to be sparingly eaten.

Beet far exceeds Cabbage in Goodness, for it generates no such bad Humours as the other, and, by the nitrous Quality of its Juice, loosens the Belly; it is accounted of a moderately hot Nature. The Roots yield a stronger Nutriment, and breed a much thicker Blood, than the Green, and besides cause Flatulencies, though in other Respects they pass well through the Body, and therefore may now and then be used.

Purslane and white Orache are Greens of a cold and humid Nature, accommodated to hot Temperaments, and the hot Season of the Year. They generate a thin and watery Blood, and are hurtful to cold Constitutions.

Endive too is accounted one of the cold Eatables; it breeds a thin Blood, but much worse than white Orache. In other Respects it is agreeable to the Stomach, and strengthens the Liver by its moderately astringent Quality.

Lettuce is much colder and moister than the former, and generates a thin but florid Blood, if it be well concocted; and procures Sleep by refrigerating and moistening the Brain. However it is to be used with Caution, lest it should render the Brain too cold and moist, and so relax the due Bent of it, which is necessary for the Exercise of its Faculties.

Wild Radish is of an acrid Quality, and therefore medicinal, by inciding and attenuating the Humours in the Stomach and Viscera; it is hard enough of Concoction. The Garden Species is of a milder Nature in all Respects, for which Reason the Wild Sort is neglected, and deservedly, because, like other Acrids, it causes an Effervescence in the Blood, by communicating its Acridity; unless any one has a Mind to use it medicinally.

Smallage, Fennel, and others of that Kind, are of an hot and dry Nature; but they provoke Urine, and relieve under Oppressions, being otherwise difficult of Concoction, and rather to be used as Medicines than Food. Leeks, after Boiling, are more approved than Onions, for they lose much of their bad and acid Juice in dressing. They are esteemed very hard of Digestion, from their fibrous Substance, but, by their natural Viscidity, render the Humours in the Breast fit for Expectoration; they are moderately diuretic.

Raw Cucumbers deserve no better Character, for they generate raw Humours, and are cold and humid to Excess, and difficult of Concoction. Pompions are a much better Food, as being allowed to ripen; though these, if they are not well digested, nor pass well through the Body, are apt to corrupt in the Stomach, and to communicate their Depravity to the Humours; but their deterfive Quality renders them easy to work off, and they usually carry with them other bad Juices. However they breed but a thin and watery Blood, if they be never so well concocted.

Gourds eaten raw are a Medium between Cucumbers and Pompions; boiled it grows better. They afford an *Aliment* of a cold and humid Quality; and though they are much used in Medicine, they are good for little else, yielding very little Nutriment, but Plenty of watery Humours, especially when they meet with a cold Stomach.

Amanitæ, (a Species of Mushroom) Mushrooms, and Truffles are of a cold and humid Nature, and generate thick and crude Juices; they agree with hot and dry Constitutions.

Sparrow-grass is in best Repute of all Greens: It creates not the least Molestation to the Stomach in Concoction, is moderately hot, consists of fine Parts, and renders the Blood every Day purer; and if any Green provokes Urine, it is sure to do it. Wherefore I think it advisable not only to eat it in the Spring, when it is at the best, but to keep it in Pickle all the Year, because it nourishes without Dispute, and generates a pure Blood; and is also highly serviceable in opening Obstructions of the Viscera, and attenuating the Humours contained in them. So much for Greens.

As to Fruits, we shall begin with Cherries. These, in general, are cold and moist; some of them are sweet and soft, others hard and more astringent. The first are to be chosen, as being more easy of Digestion, and passing sooner off the Stomach; the other agree best with a bilious Stomach, because they are not easily corrupted, and besides corroborate the Stomach by their astringent Virtue. But the immoderate Use of them, if they are not corrupted together with the inbred Juices, fills the Body with watery Humours.

The best Sort of Apples is what they call *Poma Regia*, which are themselves of a cold Nature; but they are esteemed Cardiacal, because they repel the smoaky and fuliginous Vapours that annoy the Heart, and thence ascend to the Brain. They are good to settle the Head after Drinking, for which Purpose the acid ones are best, as being of a cooling Nature, and by the Fineness of their Parts qualified to penetrate into the inmost Recesses. The most valuable Apples are such as will keep

during Winter; for acquiring due Maturity by Time, they are much fitter for Use, and not so easily corrupted.

Peaches and Apricots are also of a cold and humid Nature, and, when they are well digested, generate a thin and humid Blood. Besides, it is usual with them, if they pass not soon off the Stomach, to corrupt; wherefore I would advise those who cannot pass them through their Bodies without Molestation, to abstain from them, unless he can warrant the Temperament of his Body to be accommodated to such *Aliment*.

Plums are more commended than these last, as being quick in Passage; but where they are not so, which is the Case in some Constitutions, they are also liable to be corrupted.

Pomegranates, as well as other autumnal Fruits, yield light *Aliment*, and always generate a thin Blood. They are friendly to the Stomach, and blunt sharp and gnawing Juices; for which Reason they are very helpful, when Heat predominates in the Body, and the Season of the Year calls for Coolers. In other Circumstances, it would be imprudent to turn Physic into Food, especially when the Temperament runs counter to the Dictates of senseless Appetite and Custom.

Quinces are an astringent Kind of autumnal Fruit, which bind the Belly. This Effect it has on some Persons, when eaten before other Food, and a contrary one, if taken afterwards. Nor is this to be wondered at; for Astringents, by compressing the Mouth of the Stomach, forcibly protrude the *Aliment*, as we are wont to shew the like Effect upon a Bag or Leather Bottle, by squeezing them between our Hands, and thereby easily getting out their Contents, especially if they are pretty full, and their upper Part strongly compressed.

But among all these Fruits, the greatest Astringents are Services, Cornels, and Medlars, which are very much used in Medicine, and are otherwise good for the Stomach from their Astringency. But taken as *Aliment*, they generate Blood no Way laudable, and where Costiveness prevails, are very hurtful to the Head, and other Parts of the Body.

Figs and Grapes, considered as Eatables, have the Preference before all autumnal Fruits, in that they breed better Blood, and yield more Nutriment. But even these are accounted a flatulent *Aliment*, and are supposed to generate a lax and flaccid Kind of Flesh, and to be very bad for Scirrhoties or Obstructions in the Viscera. Figs excel the other, in having a peculiar Virtue of purging the Reins of Gravel. Both of them loosen the Belly, though the Stones are binding: By Age they lose much of their recrementitious Humidity.

Chestnuts are Fruits of a cooling, drying, and moderately astringent Quality, but generate abundance of Flatulencies. It is certain that they nourish; Roasting very much abates their Flatulency, whereas they would otherwise stick in the Passages, and be very hard of Digestion.

Walnuts are accounted hot and dry; the constant Use of them very much affects the Head and Stomach, and they are very difficult of Concoction. They are thought to be wholesomer when eaten with Figs, because by their Means they are quicker in passing through the Body.

Hasle-nuts may indeed be supposed good for the Stomach, on Account of their Astringency; but are, notwithstanding, very hard to be concocted, by Reason of the Closeness of their Substance, which also renders them more binding to the Belly.

Almonds surpass the former in Goodness; but especially the Cremor and Oil drawn from them, which are well known to be effectual, as Lenitives, in Stiffness or Roughness of the Jaws and Aspera Arteria, and as Pectorals, in evacuating the Breast and Lungs of pituitous and viscid Humours. Of the Cremor boiled, is prepared a forbile Liquor, which is both nutritive and aperient, that strengthens the Reins, and thoroughly cleanses the Thorax and Viscera, but is not so well accommodated to the Stomach. Almonds eaten whole are hard of Digestion; but the Cremor of them mixed with Barley cleansed and boiled, or something of that Kind, and especially Amylum, makes an excellent Food upon all Accounts, being light, and easy of Digestion, of good Juice, and generating a fine and florid Blood.

OF QUADRUPEDS, BIRDS, and FISHES, with their SPECIES.

Of Animals, the Species of which are vastly numerous, some are terrestrial, others winged for Flying in the Air, and a third Sort live in the Water. Each of these may be distributed into Ranks or Classes, greater or lesser, according to their different Kinds. And as to Individuals, with Regard to our present Purpose, a Distinction is to be made with Respect to Age; some are young and tender, others in full Vigour, others again are worn with Age. Besides, we must distinguish between wild and tame, or domestic Animals, and between those which are used to much Exercise or Motion, and those that are used to little or none.

As for terrestrial Animals, or Quadrupeds (with which we shall begin) they are all accounted hot, beyond a moderate Degree, affording a strong *Aliment*, which generates a thick Blood, which is best accommodated to athletic Constitutions. Volatile or aerial Animals afford not so much, but a far lighter, Nourishment. They are, in some Measure, more dry and fibrous,

fibrous, and generate a thin Blood; but such as use the Water are accounted more humid and carnosus than the rest. Aquatile Animals, generally speaking, are far more humid and cold, than those we have been speaking of; but there is no small Difference between them; for there is the scaly, the soft, the testaceous, and the crustaceous Kind of Fish. And of the first of these some are cetaceous, and live in the main Sea; others live about the Rocks and Shores. Again, among these, such as are of a larger Bulk, yield a more plentiful, but gross *Aliment*, whereas the smaller afford a more scanty, but purer, Measure of the same, especially the rocky Sort. And there is no less Ground for a Distinction to be made between them, with Respect to their Food. For since Sea-fish are universally preferred before such as live in fresh Waters, a Number of Differences will hence arise to be made on the foregoing Account. Fish that are Inhabitants of the Deep, and are continually tossed and dashed by the Waves, are better exercised, and feed on cleaner *Aliment*, and their Flesh is finer, and more solid, than others are able to shew; for which Reasons they nourish more, and generate a thick Blood. But Fish that get their Food in the Mouths of Rivers, or in marshy and muddy Places, or where Sinks and common Sewers discharge themselves, may indeed be fat, and savoury enough besides, but have nothing good or wholesome in them. Rock Fish, that live in pure Waters, have much better Flesh, are easy of Concoction and generate a pure and thin Blood. All soft Aquatics, as to Goodness of Juice, are preferable to many of the scaly Kind, as generating a thin and florid Blood: But they are full of Nerves, which makes them harder of Concoction than the rest, and they are also supposed to be colder, as being void of Blood. Next to the scaly and soft Kinds of Aquatics, are the Crustated, which are easier of Digestion than the Soft, and generate a thinner and purer Blood. The Testaceous are less valued, because they are never exercised or moved, for which only Reason some prefer Scallops because they alone, of all the testaceous Kind, are endued with a locomotive Faculty, or Power of shifting from Place to Place. Testaceous Aquatics breed a thin and watry Blood, and are besides hard of Digestion, and lie long in the Stomach. Many Persons chuse Fish with Scales and Bones, and they may easily persuade me that their Flesh is drier than that of others. For that a dry Thing may be found among moist is no more absurd, than to meet with a moist Thing among dry, of which latter we have Examples among Birds in the Dunghil-Cock and Pheasant, and more especially in the Goose and Duck, and all aquatic Fowl.

Now as we have said that terrestrial Animals consist of an earthy Substance with Abundance of Blood and Juice, and because it is presumed that they impart to us an *Aliment* of the same Nature with themselves, it would be advisable to chuse such as are young and tender, and some of the least in Bulk of their Kind, and not too much inured to Labour or Exercise. For as the Sluggish and Unexercised are over-run with Humidities, and excrementitious Juices, so those which are over-worked, or ever in Motion, are dry, and of little Substance; Excess is to be avoided in all Things. And there is a Difference to be made, even with Regard to the Members, or Limbs, of the same Animal, for the outer Parts thereof yield a drier and less excrementitious Juice than the inner, a smaller Limb than a greater, being so formed by Nature. There is also a Way of trying these Animals by Inspection of their Flesh, for in Proportion as the Flesh of any Animal degenerates from Whiteness, so much is the Goodness of its Juice depraved. In Animals of the same Species, it is universally observed that young ones yield a humid *Aliment*, the full-grown a firmer, hotter, and drier; and the old ones the worst of all, and such as increase an atrabillious and excrementitious Humour, in Proportion to their Bulk, and their Measure of Exercise.

OF WINE, WATER, MILK, EGGS, HONEY, OIL, SOAP, VINEGAR, JUICE OF UNRIPE GRAPES, POMEGRANATES, and SALT, with their different SORTS.

Of Wines, there is the thick, the thin, the austere, and the sweet; and of these, one is white, another of a deep Yellow, and a third red, for we need not mention the intermediate or bordering Colours. Again, some Wines will bear much Dilution with Water [*παραφύσις*], others but little [*ἐλαφροφύσις*]. The thick are most nutritive, and generate a thick Blood, causing Obstructions in the Viscera. Thin Wines, on the contrary, are diuretic, and generate a thin Blood. Austere Wines are best accommodated to the Stomach, but nourish little; the sweet are just the contrary. White Wines are not so heating as others. The deep Yellow have the most Heat, and next to them are the red; small Wines, that require but little Dilution, and are therefore called *Oligophora*, are the lowest, and least affect the Head. For such as study only to cherish their Bodies, and keep them in good Case, rich and high-coloured Wines will best answer their Purpose; but let such as have their Health and the calm and free Course of their animal Spirits most at Heart, be content with *oligophorous*, which is white and thin, except when an extraordinary Chiliness and low State of the Blood direct to the Use of more generous Liquors.

The best Water is such as no way affects the Taste, nor is standing like those in Pools or Lakes; or stagnates and corrupts, as in Marshes and low Grounds, that are impervious to the Winds. Spring-water is more commendable, as well as that which is drawn out of Wells, whose Waters are in continual Agitation. Next to these in Point of Wholesomeness, are River-waters, if they run pure and unpolluted from common Sewers, and Ditches, that derive into them all the Filth and Sordes of the neighbouring Cities and Country. Rivers that are remarkable for their cold and chilling Quality, or are swelled with melted Snows, are especially to be avoided; likewise all such as run foul, have muddy Bottoms, or take their Course near some hot Spring. The most wholesome Water is that which is soon hot, and soon cold, and neither affects the Taste or Smell with any sensible Quality.

Milk is to be considered as consisting of the serous, the butyry, and the cheesy Parts. The serous Part, or Whey, is only to be used medicinally, as a Cooler, and Loosener of the Belly; for it nourishes little or nothing, but is a Detergent. Butter, being heating, and its Humidity suspected, is noxious to the Stomach; but generates Blood, if it be well concocted. It soon changes into Bile, if it meets with a hot Constitution. The cheesy Part is earthy, hard of Digestion, and creates Obstructions, especially where the Viscera are already stuffed, or the Passages strait by Nature. Milk indeed, taken in the Whole, is a nourishing Food; though it affects the Head that is subject to Repletion. The Curd causes Obstructions in the Viscera. Goats Milk is to be preferred, as being of a thinner Substance than the Milk of Ewes or Cows. Chuse your Cheese new, and little salted; avoid all other, as being hard of Concoction, hurtful to the Stomach, causing Obstructions, and generating a thick Blood.

Hens Eggs are best, next are those of Pheasants, then of Ducks, and lastly of Geese. The best Part of the Egg is the Yolk, which affords pure and plentiful Nourishment to the Body; but the rest is harder and slower of Concoction*. As to the rest, what has been said of Animals may be said of their Eggs. The Eggs of Fishes are far inferior to those of Birds, both for Heat and Nutriment, as their Flesh, in Goodness, is surpassed by the others. Eggs dried with Salt are hard of Digestion, and corrupt the Blood; and the same may be said of all salted Meats.

Honey is good for the Aged, and Persons of a cold Constitution, and in the Winter-season; but hurtful to bilious Constitutions, or used in Summer. For Honey being of a heating and drying Quality, and, from its Gratefulness, familiar to the Palate, where it meets with a Temperament as much too cold, beyond a moderate Rate, as itself is too hot, they must, between them, generate a pure and temperate Blood. But when two Things of the same Quality concur, as the Honey and a hot Stomach, the Degree of Heat is augmented, and the Sweetness of the Honey converts it into Bile. Some have a Way of clarifying it, and by that Means, blunting its Acrimony, take off much of its Heat. Being so prepared, and mixed with some other Kinds of Food, in Cases where Heat is not in Fault, it becomes most wholesome and medicinal, not only nourishing the Body, but gently purging the Belly.

Oil is of a moderately hot and moist Quality, but usually disagreeable to the Stomach, on Account of its Fatness, as well as other Things of an oleous and fat Quality. Wherefore though the moderate Use of it with Meats has no sensible ill Effect, an immoderate Quantity of it, as its Nature is to swim uppermost, extinguishes the retentive Faculty of the Stomach. Oil extracted from Linseed, being neither so hot nor glutinous, and of finer Parts than the other, is more easy of Digestion, and less offensive to the Stomach. Oil of Almonds surpasses them both in Goodness, being not only of finer Parts by Nature, and less incommodious to the Stomach, but an Incisive, and an excellent Peccoral, and Emollient of the Jaws. Sapa [*Rob made of Grapes*] also makes a Part of our Diet, and is not only less heating, and more nourishing, than Honey, but causes not the least Obstruction, and moderately loosens the Belly.

Vinegar, except in cold Disorders, is wholesome Sauce with Meats; for being of a cold and dry Quality, of the finest Parts, and a great Incisive, it cuts, attenuates, and absterges those ill Humours which oppress and clog the Stomach and Viscera; and where any Food of gross Parts has been received, it is attenuated, and, as it were, elaborated, by the prevailing Force of the Vinegar.

The Juices of four Grapes, called *Omphacium*, and of Pomegranates, are useful as Medicines, but unnecessary otherwise; for though the first of them be agreeable to the Stomach, yet, as it consists of gross Parts, is of a cold Nature, and binds the Belly, it must be hurtful to some Constitutions. The Juice of four Pomegranates, though it be of pretty fine Parts, a Reliever of Bile, and a Cooler especially of an immoderately heated Blood and Liver, yet it is too incommodious to the Stomach to be used. The Abuse of this also binds the Belly, for the Acid has always a Mixture of the astringent Quality.

Salt,

* The Author makes a Mistake in the Place, for the White of Eggs is excellent *Aliment*, for Reasons given under the Article ALBUMEN.

Salt, used to season our Foods, is hot and dry, and moderately excites an Appetite. It exhausts and exsiccates a redundant Humidity. But the frequent Use of it is to be avoided, as it is an immoderate Dryer, increases Thirst, and corrupts the Blood. Used only as a Preserver and Relisher of our Meats, it can do but little Hurt; it is the immoderate Use of it that does the Mischief.

Of the QUANTITY of Food.

The Measure and Rule of Eating, in all Kinds of Food, must be such as comes short of Satiety; for then the natural Heat will prevail, and have Force sufficient to make a perfect Concoction. It will be advisable also to take our Measures from the Strength of the *Aliments*, so as when we sit down to feed upon very strong and nutritive Meats, we take Care to leave off long before our Appetite forsakes us. In Food that affords but small and light Nourishment we may freely indulge ourselves, and approach much nearer to the Bounds of Satiety, for this Sort is soon concocted, but the former stays long in the Stomach. Our Measure of Drinking must be regulated by the Dryness or Humidity of our *Aliment*. *These are admirable Rules.*

Whether it be best to eat TWICE a Day?

For the Preservation of Health, and the due Supporting and Recruiting of the animal Spirits, my Advice is, that the Provision for the Day be divided into three Parts, of which two are to be taken at Noon, and the third a little before Night. For, by this Method, the Brain will have the Benefit of a continual Humectation, Sleep will the more easily be procured, and the Spirits being thus cherished by a perpetual Irrigation, will hold out the longer, nor be liable to take Fire, or be refrigerated, with too long Fasting, for either of these may happen, according to the Difference of Temperaments and Seasons. But if Custom contradicts this Rule, and you are loth to spend your Time in doing the same Thing twice, let Custom, which has brought upon the natural Faculties a Habit of performing this necessary Work at such long Intervals of Time without Injury, be obeyed. Besides, the Spirits are rendered, though less firm and durable, yet brighter, by this Management. *Aetnarius de Spir. Animal. Nutritione.*

One Regimen of Diet will by no Means suit with all Persons, but must differ according to Constitution, Habit, and Way of Life, or any other Circumstance that may require an Alteration. There are a thousand Differences in Constitutions, whether you consider the Structure of the whole Frame, or only of the Viscera, and consequently as many Distinctions are to be made in Diet, in order to select what is most proper for each Particular. Custom also, as an external Principle, will furnish out a great Variety on this Head. No fewer than these, but almost infinite, are the various Kinds and Measures of *Aliments* that are adapted to Individuals. One likes this, another that; and every one judges of the Fitness of an *Aliment* by his Sense, and the Effect it has upon him, and founds his Choice on Experiments, and the Testimony of his Senses, which are unerring Guides in these Matters. As to the Nature of *Aliments*, with Respect to Mankind in general, some are of good Juice [*ἰσχυρὰ*], others of bad Juice [*κακὸν χυμὸν*]. The first are such as are endued with the Virtue of generating a pure Blood; the other generate Bile, or an atrabilious Humour. Again, such *Aliments* are said to be of a crude Juice [*ἀμύχρμα*] which naturally generate a crude and pituitous Humour. Moreover some Sorts of *Aliments* are easy of Concoction [*ῥιπνῆλα*], others difficult [*δυσπνῆλα*]. The first of these, we say, are agreeable to the Stomach, the others disagreeable and noxious to the same. Some loosen the Belly, others bind it, and every Sort is supposed to be endued with some peculiar Virtue or Property, the Reasons of which are founded in Nature. But when we say that this and that Sort of Food are so and so qualified, it must be understood with Respect to a rightly constituted and well tempered Body. Wherefore when you examine the Lists of *Aliments*, and see one consisting of Meats easy of Concoction, another of the contrary, one List of Emollients, another of Binders, &c. and are ready to object from Experience, that the Event has not answered the Virtues ascribed to them, you are not to impute it to the Ignorance of the Professors in the Art they pretend to, but to an Alteration in the Thing prescribed, which is produced in it from some Perversion or Dilemperature of the whole Body, or some Part of the Viscera; for a slight Disorder in the human Frame sometimes causes a great Alteration in the natural Functions; nay, the Redundancy of any Humour may possibly work the same Effect. Proper Allowances must also be made for the Season of the Year, for Age, Calling, &c. for these may cause considerable Changes in the natural Disposition. Take Care therefore of Mistakes, when you see such and such Food pass off easily with a Man, another Sort loosen his Belly, and a third have a contrary Effect, and consider with yourself, whether, and how far towards either Extreme, by any of the fore-mentioned Causes, he is removed from a moderate Standard; for, observing this Caution, you will know how to appoint him a Regimen of Diet, that shall move Step by Step with his Advances, and di-

rectly counter to the Progress of any morbose Disposition. Contraries, you know, destroy one another, and so produce a good Effect; and Things alike are confirmed by Union. Upon the Whole, then, *Aliments* seem to vary according to the Temperaments they meet with; and if we are not able to explain in what Manner they act, or how we thus become the Subject of their Action, it is enough that we are convinced by Experience, though sometimes Reason may, perhaps, succeed in her Enquiries.

The Quantity of Food must vary according to Age, Season, Constitution, and Nature of the Food itself. Young Persons not full grown, and such as are in the Flower of their Age, demand more Sustenance; the first, as not yet arrived at their just Dimensions, want more than ordinary Nourishment; and the latter, because of the Vigour of their natural Heat, and a greater Measure of Exercise withal, have strong and quick Digestions, and therefore require as much Food as the other. But Persons in a State of Life declining to old Age, must diminish their Diet, as their Vigour decays, and their Years increase upon them; for if they load themselves with more than their natural Heat is able to concoct, Crudities are generated in Abundance, and lay the Foundation of many grievous Distempers that accompany them to the End of Life. As to Seasons, if we Regard the Strength of the natural Heat, the Winter requires most *Aliment*, next to that the Spring; and a moderate Quantity agrees best with Summer. For in Winter the natural Heat retires inwards, and is supposed to augment the Force of the concoctive Faculty; but in Summer, it is weakened, and exhales, being called forth, and dissipated by the external Heat of the Season. The natural Excretions are no less to be minded, for if these do not proceed according to Custom, a proportionable Quantity of Food must be subtracted. Again, the Nature of Foods, in Respect to their Nutrition, is a Matter no less worthy of Consideration. Flesh, especially of large and full-grown Animals, is supposed to be the most nutritive of all Foods. And next to these are the younger and smaller. Inferior to these, in Point of Nourishment, are all exanguious Meats, and Vegetables in particular, which differ also as much from one another, in this Respect, as they are all surpassed by sensitive and locomotive Beings. The surest Rule, then is, when the Body wants Nourishment, to chuse such Foods as will best supply its Necessities; when it grows luxuriant, to betake ourselves to Meats of a less nourishing Kind. If the Appetite be voracious, because the extraordinary Heat of the Stomach soon consumes, or makes away with whatever comes into it, though the Body stands in no Need of Repair; in this Case, if nothing contra-indicates, Meats of small Nutrition, and of slow Concoction, are advisable. Moreover, another Consideration, of no small Importance, is the Person's Measure of Exercise and Motion. For Bodies accustomed to much and vehement Motion, stand in Need of stronger and more copious *Aliment*, than such as are indulged in Ease and Rest. Another Thing, not to be neglected, is, Whether the Belly be soluble, and the Pores free for Exhalation in the Bath, for these contribute not a little to a good Digestion, and consequently require a suitable *Aliment*. To proceed; as the Quantity and Quality of the Food, so the Times and Seasons for receiving it, are to be heedfully regarded. If Concoction be perfected, the Stomach is free for a Dinner; but if an Error be committed in Concoction, we are to beware of receiving *Aliment* upon Crudities. For when crude Juices are mingled one among another, we may reckon ourselves very fortunate, (as it rarely happens,) if we can discharge them upwards or downwards. But it generally falls out, that the ill Humours settle themselves in the Belly, or Viscera, and there breed Vertigos, Eructations, Gripings, and other Disorders. If the Humours discharge themselves outwards into the Limbs, they are attended with all the Symptoms of a Defluxion, as the Gout in the Feet and Joints, and the consequent Disorders. Therefore he that intends a Regimen of Diet, must not determine himself to one or two Meals a Day, but to eat after perfect Concoction. For two Meals may be too much for him, and even one, if chosen of improper Meats, and his Digestion be vitiated, may be hurtful; but let him, however, feed on pure and light Food, and such as is familiar to his Temperament and Disposition. For it must be observed, that among several Sorts of Meats, of good Juice, and easy of Concoction, some are more acceptable than others, on Account of a certain grateful Propriety and Familiarity with the Stomach and Palate: Hence the same *Aliment* is not to be offered to all indiscriminately, without the least Variation; for sometimes a Defect in one Food, compared with another of better Juice, is more than compensated by the good Liking of the Appetite towards it. And this ought not to seem strange, but very reasonable, that Food with which our Body is familiarized, should prove most grateful and nutritive. For since there are various Temperaments and Qualities in *Aliments*, it is very reasonable and natural, that we should prefer such as agree with the Disposition of our own Body, or at least of our Stomach. *Aetnarius de Methodo Medendi. Lib. 3. Cap. 12.*

Aliment in too great a Quantity, though of good Juice, usually causes Crudities, Vomiting, and a Looseness; *Aliment* in a

less Quantity than Necessity requires, renders the Body empty, lean, weak, and unable to perform its accustomed Duties for Want of Spirits. *Aliment* of bad Qualities generates a *Cacochymy*, which is known by the prevailing Quality. Again, a Person oppressed with the Quantity of Food is immediately sensible of the Hurt he receives; but the Evils proceeding from Food of bad Juice are not felt under a long Time. Hence, though a Man may seem to bear bad Diet, and to come off well and unhurt, he cannot be said to have escaped whole and undamaged, but the Issue is to be expected a good while, when the Mischief at last will appear in the Form of a putrid Fever, or break out in Scabs, Tubercles, or other pruriginous Affections of the Skin. Wherefore we ought not only to take Care that our Food be moderate in Quantity, but also that this moderate Quantity offend not in Quality, that we may not feel the bad Effects of it hereafter; except in Cases that require a medicinal Diet, which ought then to be followed for the greater Security of the Patient. But an *Aliment* of bad Juice, and yet medicinal, is quite different, as to its Use, from *Aliments* to which the Body is accustomed. For in sound and temperate Constitutions, that want Nothing which is excessive in any Respect, whatever agrees not in a like moderate Commixture of its Elements, we place under the general Title of *Cacochyma*, or *Aliments* of bad Juice: But *Aliments*, which by their Excess in any Quality supply the Defect of it in our Bodies, and so reduce it to a just Temper; we call *medicinal*. *Aetuarium de Methodo Medendi Lib. 3. Cap. 9.*

As the preceding Rules of *Aetuarium* are generally excellent, and give many useful Hints, I could not deny myself the Satisfaction of inserting them.

In the preceding Pages I have given the Sum of what the Antients have wrote with Respect to *Aliments*. I shall now proceed to give the Sentiments of Hoffman, who has treated the Subject more scientifically, and has given better Reasons for his Assertions.

The Health of the human Body evidently depends upon the Quantity and Quality of the Blood and Juices; whence it is plain, that all those *Aliments* which preserve and maintain a just Temperament, and a due Quantity of these, are beneficial to Health, and that such as have a contrary Tendency are to be reckoned unwholesome.

For Blood of a just Temperament, and neither exceeding nor falling short in Quantity, as it circulates most easily through the Body, and is clear of all foreign Particles, is admirably adapted to nourish the Parts and increase Strength; so that it may be called *the real Treasure of Life*.

Blood of a due Temperament, and benign Quality, by its progressive as well as intestine Motion, which continue during the whole Course of Life, is not only continually wasted, but likewise acquires a morbid Disposition, and degenerates into an impure and excrementitious Mass.

Experience proves, that the Blood of those who have fasted long is converted into saline and bilious Excrements, which are discharged by Stool, Urine, and Sweat, and even loses that natural balsamic Quality which is necessary to Health, and the Mass of Humours is by this Means rendered so thin and fluid, that it becomes intirely unfit for nourishing the Parts. This appears still more plainly from continual Fevers, and hectic Disorders, the Nature of which Diseases it is to waste the Juices, and convert the most benign Humours into useless, salt, and bilious Excrements. Labour also, and Exercise, because they augment the intestine and progressive Motion of the Blood considerably, lessen the Quantity of superfluous Humours, as Persons of full plethoric Habits experience, to the no small Advantage of their Health.

Because the Blood, by its continual Motion, is wasted and converted into an excrementitious Mass, utterly unfit for nourishing the Solids, or recruiting that fine Fluid which supplies the Body with Sense and Motion, it is plain that Life and Health cannot be preserved, unless these natural Motions be continually repaired, and new Juices substituted in the Room of those thrown out of the Body as excrementitious.

The Reason is therefore plain, why People stand in Need of continual *INGESTION* and *EGESTION*, or, in other Words, of Eating, Drinking, and Evacuations, for Health cannot long be preserved, unless the Place of the corrupted Humours discharged be supplied by new Juices.

Solid Foods of a good Quality, as well as Liquors, recruit the lost Juices; and therefore all those *Aliments* that are nearly of the same Nature with the Blood, and easily mix with it, ought to be reckoned amongst wholesome *Aliments*.

Blood and Juices fit for Nourishment are of a benign Quality, of a due Temperament, and resembling a Jelly, consisting of small earthy, aqueous, oily, and easily moveable Particles, thoroughly mixed with each other: Hence all those *Aliments*, which abound with a mucilaginous Juice of a due Temperament, are most fit for *SANGUIFICATION*, or the Production of new Blood.

The Flesh of young Animals, their Juices, and Broths made

of them, especially of young Beef, Veal, and Mutton, afford large Quantity of Jelly, and on that Account are justly reckoned among the *Aliments* which are most quickly converted into Blood. All Sorts of the Hen Kind and Pigeons, with their Young, are likewise well disposed for Nourishment, because they afford a more subtile Jelly than the animal Flesh above-mentioned, though in a smaller Quantity.

It is worth while to observe, that the *CLEAN ANIMALS*, which, according to Moses, were used by the Israelites in their Sacrifices, were principally such as afforded a good and wholesome Nourishment, since they abounded more than others with nutritive mucilaginous Juices.

Broths and Jellies made of Flesh are therefore, not without Reason, prescribed for recruiting the Strength of those who either by large Hemorrhages or violent Fevers have sustained a Loss of Blood; and People who feed much upon those mucilaginous *Aliments*, which the French above all other People in the World do, can bear to have Blood taken from them more frequently, and in larger Quantities, than People who are not so much accustomed to them.

The Chyle is the immediate Matter of the Blood, and resembles a natural Emulsion made of soft, oily, insipid, watery, and mucilaginous Particles; for this Reason all those *Aliments*, into the Composition of which Parts resembling Chyle enter, are proper for nourishing the Parts, and producing Lymph and Blood.

Milk, which is nothing but Chyle, is an universal *Aliment*, and, in Respect of Nourishment, to be preferred to all others.

And for this Reason Milk is given as the first *Aliment*, not only to Children, but to robust Animals, that their Bodies may grow the faster, and acquire Strength and Maturity the sooner; for Food that is solid, of a firm Cohesion, or hard Digestion, does not well agree with young and tender Bodies, because the Stomach and Intestines have not that Strength and Force which are necessary for the Digestion and Expulsion of solid Foods. Hence a Reason may be assigned, why some People, especially the Swiss, who are great Lovers of Milk, and make much Use of it in Food, grow so very large and tall, that scarce any Nation in Europe can surpass them in that Particular. Pliny, Tacitus, Justin, Cæsar, and Salust give us Accounts of many who by the Use of Milk have lived to a very great Age; and Galen, in *Lib. 5. Cap. 7. de Sanitate tuenda*, mentions a Man who, using no other Food than Milk, lived to more than a hundred Years. In Holland, and some Northern Countries, and likewise in Friseland, many use Milk for their ordinary Drink instead of Beer; and Ovid gives us the Sense of Antiquity with Regard to Milk in the following Lines, *Lib. 4. Fast.*

*Lacte mero Veteres usi memorantur & Herbis,
Sponte sua si quas Terra ferebat.*

All mild Seeds which abound with a milky Juice are to be reckoned among the Class of nourishing *Aliments*.

Hence appears the Reason, why Seeds and Grains of most Kinds, such as Barley, Wheat, Oats, Rye, Beans, Pease, Almonds, Chestnuts, Pine-nuts, Fillick-nuts, Rice, Mays, and Turkish Corn are extremely proper for nourishing Animals, and why the Meals of these baked into Bread are the principal and most general *Aliments* made Use of; from this likewise one may account for People's being able to live tolerably on Bread and Water only.

Among all other *Aliments* Bread holds the principal Place, nor can we possibly want it without injuring Health. Its Use is proper at all Seasons, and accommodated to all Constitutions, and may therefore properly be called an *universal Aliment*; nor can Flesh and other Substances be taken alone, and without it, since in that Case they create a Nausea.

The Texture of the Parts of Bread is admirably adapted to the Nature of the nutritious Juices; for it is mixed with mild, oily, and mucilaginous Particles, and likewise with a subtile acid Salt, which are very grateful to the Stomach, and quicken the dissolving Power of the salival and fermentative Juices. But as all Bread is not made of one and the same Grain, so one Kind of Bread is preferable to another with Regard to its healthful Qualities. The best and most nourishing Bread is made of dry Rye-meal, not very white, but mixed with the smaller and finer Parts of the Bran. For by a chymical Analysis, blackish coarse Bread upon Distillation affords more Oil, which diffuses a more agreeable Flavour, and more effectually recruits Strength, than that which is drawn from fine Bread. But that which is made of Barley, Oats, Turkish Corn, or even of Acorns or Chestnuts, is heavier on the Stomach, nor is it so effectual for repairing lost Strength. See *BOMPERNICKE*.

Eggs, because they contain a very fine, balsamic, pellucid Lymph, which approaches nearest to the immediate Matter of Nourishment, therefore afford a very speedy Nourishment to the Parts.

Eggs afford a very speedy Nourishment, if they are new laid and soft, according to that Maxim of the *Schola Salernitana*, *Si sumas Ovum, molle sit atque novum*, i. e. *If you incline to eat*
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an Egg, let it be soft, and new laid. The Yolk contains many unctuous, fat, and sulphureous Parts; the White, on the other Hand, consists of moist, balsamic Parts like those of the Serum, so that if any Food is universal, this is certainly such, and is in a peculiar Manner adapted to increase the seminal Liquor. Eggs are of all other Things most proper when the Body, either weakened by an Effusion of Blood, or wasted by the Shocks of a Fever, requires a very speedy Supply of Nourishment. For this Reason the *Talmud* advises poached Eggs for those who have had a Vein opened. They are vastly beneficial to old Men, who stand in Need of good Nourishment, and such as may be easily digested by the Stomach. I do not, on the contrary, approve of their being used by those who have their Stomachs loaded with Bile, or any Collection of acid Humours, because the more Bodies abounding with impure Juices are nourished, the more they are injured by that very Means. They are known to be fresh by their being pellucid when exposed to a clear Light, and by their retaining their milky Liquor, after having been boiled over a strong Fire.

Cheese and Butter are universal and most excellent *Aliments*.

Since Milk is resolved into Butter and Cheese, and since the Butter contains its oily, and the Cheese its mucilaginous and terrestrial Parts, it is therefore plain that these two, especially with the Addition of Bread and Water, must be a very valuable and universal Nourishment, fit for Persons of all Ages and Constitutions. The newer Butter is, it is of Consequence at once the more grateful to the Stomach, and the more conducive to Health; but when long kept, it grows foetid and rancid. The too great or too frequent Use of it, by relaxing the Fibres of the Stomach, weakens its Tone, and excites Nauseas. Butter joined with Cheese is likewise very nourishing; but Cheese should be neither too new, nor too old. If too new, it loads the Stomach, and binds the Belly; if too old, it increases the Acrimony and Impurity of the Humours, as it is endowed with a poignant Taste, and a foetid Smell.

As the Blood, the nutritive Juice, and in general all the Parts of the Body, are made up of three Elements, viz. First of one which is sulphureous, oily, and inflammable: Secondly one of an earthy, subtle, alkaline Nature, which is nevertheless more fixed: Thirdly one of an aqueous; so the several Kinds and Virtues of *Aliments* may be most commodiously reduced to these three Classes.

Aliments of these three several Qualities, duly mixed with one another, afford a proper Nourishment for the human Body.

The Flesh of Animals, especially when roasted, affords the Body its principal Supply of the sulphureous Part; but it is to be observed, that wild Animals are preferable in this Respect, to those of the tame and domestic Kind, *because their Oils and Salts are exalted by their habitual Exercise.*

That the Flesh of Animals contains more of a subtle Oil, than Vegetables, is plain from this, that in the Summer Flesh very soon turns putrid and offensive, which is not found to be the Case with Respect to Vegetables.

Vegetables have an Acid in their Composition, and their Oils, excepting some of the hotter Herbs, are for that very Reason so much the milder. Animals, on the other Hand, have no Acid in their Composition; for all the Parts of them, subjected to Distillation, yield a subtle Oil, and a volatile Salt; and this hot Oil is what principally excites an intestine and fermentative Motion in the Blood, and proves the Occasion of the penetrating and disagreeable Smell which is felt upon Putrefaction.

The roasted Flesh either of wild Beasts, or wild Fowls, furnish the Blood with greater Store of a light sulphureous Substance, than boiled Flesh, or those of tame Animals.

The Flesh of wild Animals, and wild Fowls, is undoubtedly lighter, more subtle and oily, but fraught with a smaller Quantity of mucous balsamic Matter, than the Flesh of tame Animals; because wild Animals use more violent Exercise, breathe a freer and purer Air, and feed upon drier *Aliments*. Add to this, that by the very Roasting much of the Humidity is evaporated, by which Means the oily Principle disentangling itself from the rest of the component Parts, and being exalted by the Fire, enjoys its full Liberty, and has the Ascendant over the other Parts.

Among the *Aliments* which furnish the Blood with its humid Parts, of Animals Fish, and of Vegetables Pot-herbs, the milder Roots, and some Summer Fruits, are reckoned the principal.

Fish subjected to Distillation yields much Phlegm, little Oil, and very little volatile Salt. *This Assertion is a little too general. See ALCALI.*

Because Fish contains only a very small Quantity of Oil and volatile Salt, it does not so easily turn putrid as Flesh, and for this Reason is generally less hurtful in Fevers than Flesh. *I suppose Hoffman means River Fish, which have Scales.*

To the third Class of *Aliments* which supply the Blood with its fixed and earthy Parts, belong all Kinds of Grains, as the

several Kinds of Bread, Rice, Pease, Beans, Lentils, Chestnuts, Almonds, Cacao, Cheese, &c.

From what has been said it will appear, that all such *Aliments* as are of a mild Quality, and resemble the Chyle and Blood, are fit for Nourishment.

All such *Aliments* therefore as either recede from, or are quite opposite to the Nature of the Chyle and Blood, are unfit for Nourishing the Parts.

All *Aliments* in which there is too much of an Acid, are improper for Nourishment; because Milk and Blood will not mix with an Acid, which is quite opposite to their Natures, and induces a Coagulation of the circulating Juices.

Hence the Reason is plain why the too liberal Use of Salads, Summer Fruits, especially whilst crude and unripe, Vinegar, sour Ale, and Wines that abound with an Acid, are so remarkably prejudicial to Health.

No Salt whatever can be mixed with the Blood, Chyle, and Milk, for which Reason all Salts, and all Foods too highly salted, must be improper and unfit for Nourishment.

Blood and Chyle never incorporate with spirituous Liquors, but rather separate from them; whence it is easy to judge how detrimental the free Use of them is, both to Health and Nourishment.

All sweet Things, as Sugar, and Honey, have no Affinity with the Blood and Chyle, but rather recede from their Nature, since they have an exquisite Taste which the Blood, Chyle, and nutritive Juices have not.

Though sweet Substances consist of a temperate Mixture of Parts, and may on that Account seem proper for Nourishment, yet the sweet Particles are Salts of a peculiar Kind, which are dissoluble in Water; hence they cannot be joined to the Substance of the Parts, since they are liable to be dissolved by the circulating Fluids.

Aliments proper for preserving Health ought not only to contain a laudable Juice, but should likewise be easily dissolved by the Stomach. Hence it is plain, that all those Kinds of Food, which on Account of the Closeness and Compactness of their Texture are with Difficulty dissolved, are for that very Reason less conducive to Health.

The Flesh of old Animals, Flesh dried in the Smoak, hard Eggs, Sea Fish almost of all Kinds, and very coarse Bread, on Account of the rigid and complicated Texture of their Parts, are for that very Reason with some Difficulty concocted by the Stomach, and converted into Juice and Blood.

As these hard and compact Foods require much Warmth, Abundance of fermentative and salival Lymph, and a strong Stomach to disjoin and break their complicated Textures, so they do not agree but with robust Constitutions, and People that labour hard; for this Reason the Inhabitants of some Northern Countries, such as the Swedes, the Norwegians, the Laplanders, the Finlanders, the Westphalians, and the Pomeranians are not easily injured by Foods of this Kind, because their Stomachs being not only naturally vigorous, but likewise strengthened by Custom, easily dissolve and digest them.

Of Vegetables, Roots, Fruits, and Herbs, especially if eat crude, and before they are sufficiently softened by Boiling, are difficultly concocted by the Stomach, because their fibrous Texture is hard to be dissolved.

Aliments of the vegetable Kind are for that Reason likewise heavy on the Stomach, since they produce many Flatulencies which disturb and disorder the primæ Viæ.

To this Class belong all unripe Fruits, Pease, Beans, Turnips, Rape, bulbous Roots, the several Kinds of Cabbage, Garlick, Onions, Radishes, Salads prepared of Lettice and other Herbs, Pears Apples, Prunes; Honey and Water, Honey, Must, and all sweet Fruits of whatever Kinds; for such is the Nature of these that they easily run into a Fermentation, or even become sour, and by Reason of their viscid Tenacity are resolved into Fumes and Vapours.

The tenacious and glutinous Parts of Animals, among which are the Stomach, the Intestines, the Spleen, the Kidnies, the Beaks, the Vulvæ, the Ears, the Skins, and the Claws, are of hard Digestion, and with Difficulty yield to the Menstruum of the Stomach.

Fat Substances are with Difficulty digested by the Stomach, for if an Acid, with which Vegetables principally abound, be added to them they run into a Coagulum.

Fat Foods require an alkaline Liquor for breaking and disjoining their complicated Textures; for which Reason a good Deal of Bile is requisite to prevent their proving hurtful to the Stomach; for when an Acid in the Stomach attempts the Solution of fat Substances, hot sulphureous Vapours and Eructations are caused, which are very troublesome to the Alimentary Tube.

The more viscid, rancid, and old, fat Substances are, they are for that Reason so much the worse. The new and recent are better, and sooner yield to Solution and Digestion.

Hence the Reason is plain why the Fat of Beef is not so hurtful when used in the Preparation of Food, as the Fat of Mutton, or that of the Kid, the Sow, or the Goose. Hence likewise

likewise may a Reason be assigned why old Flesh such as is hardened in the Smoak, because of the Rancidity which Fat contracts, and Bacon which has acquired a Rustiness and yellow Colour, are highly improper for the Preservation of Health.

In order to the Performance of the Office of Nutrition, it is necessary that the small Mouths of the internal rough Coat of the Intestines absorb the Chyle, and convey it to the Blood; for which Reason none of those *Aliments*, which either obstruct, or too much corrugate its Mouths, can be used, without in some Measure injuring Health.

Since the effete Mass of *Aliments* drained and exhausted, by the Separation of the Chyle from it, ought by the expansive and contractive Motion of the Intestines to be thrown off from them, it must of Course follow, that all those *Aliments* are prejudicial to Health which either pass through the Intestines with Difficulty, stop their Motions, or weaken their Tone, and impair their Strength, by suppressing Excretion so necessary to Health.

All *Aliments* that are acid, astringent, mouldy, glutinous, viscid, austere, or such as easily run into a Coagulum, are for this Reason prejudicial to Health, because they weaken the Tone of the Intestines, and by that Means prevent the superfluous Fæces from being discharged.

This Characteristic of Unwholsomeness belongs to all unripe Summer Fruits, Pears, Quinces, Pomegranates, Medlars, the Fruits of the Thorn, and Myrtle, Sea Biscuits, the Crust of Bread, Bread that is mouldy, hard, too coarse, or taken warm from the Oven, all farinaceous Substances, Gruels made of Pease, Beans, Lentils, and Millet, Cakes or Bread not sufficiently fermented, Cheese eat too freely, Sheeps Milk, and in fine all milky and fat Substances; all which *Aliments* do still more remarkably hurt the Constitution, if Wine, Acids, or cold Liquors, are used along with them; for by this Means they are reduced into a firm Coagulum, which adheres immovably to the Coats of the Intestines, and incrustates the Orifices of their small absorbent Vessels; whence proceed copious Flatulencies and Spasms.

The Unwholsomeness of *Aliments* is to be estimated from their impairing the fermentative and solutive Powers of the Stomach, since by that Means Crudities are generated.

The Action of the fermentative Juice is impaired and weakened by all fat, oily, and very sweet Substances; by Honey, Hydromel, or Honey and Wine, new Grapes, Summer Fruits, green Figs. All Pulses, farinaceous Substances, Gruels made of Millet, lukewarm *Aliments*, the fibrous Roots of Pot-herbs, Cheese, and curdled Milk, all which are the more prejudicial to Health, the greater Quantities of them are taken into an empty Stomach.

Every Acid, and every Putrefaction, are prejudicial to Health; and for that Reason all *Aliments* which easily grow sour or putrid in the Stomach, may be justly reckoned unwholsome.

An Acid is equally injurious to the Primæ Viæ and to the Blood, for it destroys the alkaline and balsamic Quality of the Bile, coagulates the Chyle, and retards the Expulsion of the Excrement. Add to this, that when it is mixed with the Blood, Stagnations of the Juices, and Insarctions of the Viscera, are generated. (This Assertion is a little too general. See the Article ACETUM.) And when the first Organs of Digestion are affected by putrefied *Aliments*, and the Putrefaction extends itself towards the more internal Parts, it communicates its own bad Disposition to the most wholesome Juices. Among those Foods which by their long Continuance in the Primæ Viæ grow acid, may be reckoned all Summer Fruits, Milk, Honey, almost all Sorts of Tarts, sweet Wines of several Kinds, Must, Hydromel, and fermented Bread; and those *Aliments* which soonest grow putrid by a long Stay in the Primæ Viæ are boiled Flesh; for of all *Aliments* used by us, none have a greater Tendency to Putrefaction than Flesh. Wherefore it is for very valuable Purposes, that Nature in acute Diseases, and in Habits abounding with impure Juices, does of her own Accord loath and abhor Flesh, and those Physicians laudably assist Nature in carrying on her Design, who in Cases of that Nature forbid their Patients the Use of nourishing Broths; for *Aliments* of this Kind wonderfully add to the Putrefaction which is the formal Cause of the Malignity. For this Reason when Pestilences or other epidemical Diseases rage, it is advisable to abstain from Flesh, and use acidulated Liquors, which strongly resist Putrefaction, and by that Means prove remarkably serviceable; but this is to be understood of those Constitutions which are infirm, weakened with Fevers, or loaded with impure Juices; so that Hippocrates was very just in his Observation, *That the more Bodies abounding with impure Juices are nourished, the more they are injured.* Corrupted Fish, putrid Flesh, or that of Animals which laboured under any Disease, have of all other Kinds of Food the strongest and most direct Tendency to produce a Putrefaction in the Body. *Hoffman, Medicina Rationalis Systemat.*

A CHYMICAL EXAMEN OF FLESH-MEATS commonly used for BROTHS. By M. Geoffroy the Younger. *Mémoires de l'Acad. Roy.* 1730.

Of all *Aliments* those derived from Vegetables must be fittest for sick Persons, because, being less complicated with Respect to their Elements, they seem to bear a greater Analogy to Nature, as M. Lemery has proved in one of his Memoirs. How reasonable soever this appears, Broths made of Flesh are established by Custom, and generally pass for the most wholesome and necessary Food in Cases of Sickness, when it is almost the only Diet in Use.

It is only by an Examen of the Principles contained in this Sort of *Aliment*, that we are qualified to give it with Discretion, so that we may avoid on the one Hand the Danger of prescribing it too freely, in Circumstances where a strict Diet is almost the only Remedy, and yet not be too sparing on the other Hand, when the Patient exhausted by long Sickness requires a gradual Augmentation of *Aliment* for the Recovery of his Strength. For our Satisfaction in this Point, and that we may know how to adjust the Proportions of such Food in whatever Cases may offer, I have made an Analysis of such Flesh-meats as are most in Use, or contain an *alimentary* Juice which is accounted salutary; such as Beef, Veal, Hens, &c. I undertook this Disquisition only because the Analysis of carnos Foods had not been carried so far as that of Vegetables.

The late M. Dodart, whose Memory is so much respected by the Academy, and who was distinguished for his extreme Accuracy, contented himself with saying, in 1702, That he was of Opinion, with the late M. Bourdelin, that the Flesh of Animals boiled to a Jelly, and afterwards distilled, yielded no less Quantity of volatile Salts, than if they had been distilled raw. Now as it appeared that none had been so careful as to determine the Quantity of the Extract which these Jellies left after Evaporation, and what these Flesh-meats had communicated of their Principles to the Water in which they had been boiled, I undertook the Affair, with an Intention to adjust that neglected Part according to Analyses which are already well known. I proposed to myself to discover the Quantity and Quality of the Principles of the raw Flesh-meats which are put in Distillation; what Principles they impart to those solid Extracts which are made out of them by Ebullition and Evaporation; the essential Difference of those volatile Salts which are drawn from them; what Principles are yet further contained in these Meats, after they are exhausted of their Juices, and become dry; lastly, I shall determine, in another *Memoir*, the Quantity of Nutrient that is to be expected from the Bones and osseous Substances in the Dressing.

BEEF.

To begin with Beef, I took a thick Piece of the same, and having cleared it of the Fat, Bones, Cartilages, and Membranes, had it cut into Slices of a Quarter of a Pound Weight. One of these I distilled in a Bath Heat, without any Addition; it afforded two Ounces, six Drams, and thirty-six Grains of Phlegm, or Humidity, which passed into the Receiver, and the dry Flesh, which remained in the Retort, was reduced to the Weight of one Ounce, one Dram, and thirty-six Grains. The Phlegm had the Smell of Broth, and had some Characters of a volatile Salt, for it precipitated a white Powder from a Solution of corrosive sublimate Mercury, as is the Manner of pure volatile Salts; and the Phlegm that came over last in the Distillation gave yet more sensible Marks thereof, by precipitating a greater Quantity of the same Solution.

The dried Flesh, weighing as aforesaid, being placed in the Retort, in a reverberatory Furnace, in order to an Analysis, afforded a small Quantity of Phlegm, charged with a volatile Spirit, which weighed one Dram four Grains, and after that three Drams forty-six Grains of a volatile Salt, and a thick fetid Oil, which could not be separated.

The Caput Mortuum, or Substance left in the Retort, weighed three Drams thirty Grains. It was a black Coal shining, and of little Weight, which was calcined in a Crucible over a very strong Fire, and by that Means reduced to Ashes, which weighed forty Grains. These Ashes, being exposed to the Air, imbibed the Humidity which augmented their Weight. They were made into a Lixivium, which being examined afforded no Signs of an alkaline Salt, but of Sea-salt, by precipitating a white Powder from a Solution of Mercury in Spirit of Nitre. It caused no Change in the Solution of the sublimate Corrosive, except that, after it had rested some Time, it formed at the Bottom of the Vessel a Sort of Cloud, in Form of a slight Coagulum. Now hitherto we know of no Salts, except those which are of the Nature of Sal Ammoniac or Sea-salt, that precipitate a white Powder from a Solution of Mercury in Spirit of Nitre; nor any Thing, except the absorbent animal Earths that I have observed to slightly precipitate a Solution of Corrosive sublimate.

Upon four Ounces of Beef, dried in a Bath Heat, I poured the like Weight of Spirit of Wine well rectified, and let them digest together for a very long Time. The Spirit took a weak Tincture from the Flesh, and extracted from it some Drops of Oil, the Colour it had acquired was red, and it had a faint Smell. Oil of Tartar mixed with this Spirit discovered itself by an urinous Smell. Its Mixture with a Solution of Mercury in Spirit of Nitre turned it white, whence proceeded a yellowish white Precipitate. This Liquor afterwards became gritty, from the urinous Sal Ammoniac with which the Spirit of Wine was impregnated. The Experiment of mixing this Spirit of Wine with a Solution of Corrosive sublimate produced a white Precipitate, which turned a little yellow. In this last Case there would have been no Precipitation, but for the urinous volatile Salt which entered the Spirit of Wine with the Sal Ammoniac.

Four Ounces of the like Beef being boiled in a Vessel well closed with three Pints of Water, and the Boiling being renewed six Times with the like Quantity of new Water, in order to exhaust as much as possible the Juice of the Meat, I put together all the Liquors of these Dressings, the two or three last of which had only a very faint Smell of Veal-broth, evaporated them by a gentle Fire, and towards the End of the Evaporation filtrated them in order to separate the earthy Part; and there remained in the Vessel an Extract moderately solid, which very readily imbibed Humidity from the Air, and was found to weigh one Dram fifty-six Grains. Thus the Result of this Experiment is, that since four Ounces of boiled Beef afford one Dram fifty-six Grains of Extract, one Pound of the like boiled Beef must yield seven Drams eight Grains of the like Extract, besides eleven Ounces, six Drams, sixty-four Grains of Phlegm, and three Ounces two Drams of Fibres exhausted of all their Juice. This Produce may vary according to the Feeding of the Animal in good or bad Pastures, or as the Flesh we chuse for the Experiment is fresher or staler. It is to be observed, that good Beef boiled will scarce ever turn to a Jelly, if we strip the Flesh of the Membranes, Tendons, and Cartilages. Now by *Jelly* I do not mean the Extract above-mentioned, but what after Boiling becomes of itself one clear, trembling Mass when it is cold.

The Extract of this Beef, which weighed one Dram fifty-six Grains, afforded in its Analysis one Dram two Grains of volatile Salt, which adhered to the Sides of the Receiver, not in Ramifications, as is usual with volatile Salts, but in flat Crystals, shaped for the most Part like Parallelopipedons. The Spirit and Oil, which came together, after the volatile Salt, weighed thirty-eight Grains. The fixed Salt of Tartar, mixed with this volatile Salt, seemed to augment its Force, which might give Room to suspect that this last was an urinous Sal Ammoniac, and so much the more for that the Crystals of this volatile Salt had a near Resemblance to the volatile Salts of Urine, which are known to be different from other volatile Salts extracted from the Flesh of Animals.

The Caput Mortuum, or Coal which remained in the Retort, was very light and porous, and weighed but six Grains. The Lixivium thereof precipitated a white Powder from a Solution of Mercury, like the Lixivium of the Ashes of the raw Beef above-mentioned.

The six Drams thirty-six Grains of the dried Mass of Fibres, being analysed after the same Manner, yielded two Grains of volatile Salt, in the Form of common volatile Salts, which adhered to the Sides of the Receiver in Ramifications, mixed with a little fetid Oil, thick enough, but not so brown as what was extracted from the boiled Mass. The Spirit, which was of a citron Colour, being separated from its Oil, weighed thirty-six Grains. The Caput Mortuum weighed one Dram sixty Grains.

The Lixivium made after the Calcining could not alter the Solution of Mercury made with Spirit of Nitre, because, when the Fibres of this dried Beef were analysed, they were already deprived, not only of all their essential Sal Ammoniac, but also of their fixed Salt, which is of the Nature of Sea-salt; for these Salts passed off, in a great Measure, with the Oils, into the Water, during the long Boiling of the Flesh. This Lixivium had only a faint Tincture of the Colour of an Opal. The Solution of Corrosive sublimate proves that there still remains an oily Part. It is known that sulphureous Substances precipitate a black Powder from that Solution, or rather a deep Violet, which begins with an opal Colour.

It appears then by the Analysis of the boiled Mass, that there passes into the Water, during the Ebullition, a Sal Ammoniac, which we may look upon as the essential Salt of this Kind of Flesh, and which, in the Distillation of the Extract, appears under a different Form from what was extracted from the Flesh distilled raw, which was the Method of former Analyses. And it seems probable, that this Salt is the very same as is separated from the Blood by Urine after Nutrition, since the volatile Salt, which I gained by this Extract, has a near Agreement, as I made appear, with the Salt extracted by Analysis from Urine. The Salt then produced by the Extraction will be the Product of that natural Sal Ammoniac which is in Flesh-meats, and is easiest to be sublimated with that which is afterwards extracted

from the Fibres. And we may say, after this Operation, that the volatile Salts are almost constantly the Product of the Fire, since Principles so little sensible will discover themselves no farther, than as they are disclosed by the Violence of the Fire acting on the Matter by Burning or Calcining, in order to the Formation of the volatile Salts.

I have given a particular Relation of my Operations on Beef, that I might give an exact Account of my Labours, which were the same on all other Kinds of Flesh-meats which I examined, so that I need not repeat the Process in the Course of this *Memoir*.

VEAL.

Four Ounces of Flesh, cut from a Fillet of Veal, and distilled in a Bath Heat, as the Beef was, afforded two Ounces, six Drams, fifty-four Grains of Humidity; the dried Flesh weighed one Ounce, one Dram, eighteen Grains, after it had yielded out its Principles by Analysis. The Caput Mortuum weighed two Drams fifty one Grains; its Lixivium gave Marks of a Sea Salt, as did the Beef.

Four Ounces of the same Flesh boiled afforded a Substance somewhat like a Jelly, which was reduced by Extraction to two Drams thirty Grains of a pretty solid Matter, though difficult to be dried. The Mass of the dried Fibres weighed five Drams sixty-two Grains: So that one Pound of a Fillet of Veal contains eleven Ounces, six Drams, sixty-four Grains of Phlegm, one Ounce, one Dram, forty eight Grains of Extract, and two Ounces, seven Drams, thirty two Grains of Fibres dried, or intirely deprived of their Juice.

By comparing the Products of the first Operations made on Beef with the like made on Veal, I found the Veal to contain more Phlegm than the Beef, by four Ounces eighteen Grains; that it afforded forty-six Grains more of Extract, and that the dried Fibres weighed forty-six Grains less. Now since the dried Fibres weigh less than those of the Beef, and since more Phlegm and gummy Parts are thence extracted, may we not presume that the Liquids which circulate in the Body of the Calf, where they serve not only for Nutrition, but also for the Growth of the Animal not yet come to Perfection, contain Particles more disposed to become solid, than the Liquids circulating in the Beef, where they serve only for Nutrition? For the same Reason the Extract from the Veal becomes firmer than that from the Beef; because it contains a greater Quantity of those gummy Particles which are appointed to become solid for the Lengthening of the Bones, Cartilages, Tendons, &c. And it is impossible to give the same Firmness to the Extract of Beef, unless it be boiled with the Bones, Cartilages, and Membranes, which are nothing, as I may say, but a Composition of these gummy Particles.

The two Drams thirty Grains of Extract from the Veal afforded me in the Analysis one Dram twelve Grains of Spirit, Oil, and volatile Salt, which last had the urinous Character like that of Beef. The Caput Mortuum left in the Retort weighed but a Dram.

The five Drams sixty-two Grains of dried Fibres, from which the Extract was made, being put in the Reverberatory, afforded one Dram sixty-six Grains of volatile Salt, of the Character of common volatile Salts, that is, it was in Ramifications; and one Dram thirty-seven Grains of Oil and volatile Spirit; the Caput Mortuum in the Retort weighed two Drams eighteen Grains.

Here I take again the Weight of these Caput Mortuums, or Coals, in which there can be no Mistake, especially with Respect to their Weight. That of the Extract of Beef weighed but six Grains, that of the Extract of Veal seventy-two; so that there was a Difference of sixty-six Grains in the Weight of the two Coals of the Extracts.

The Coal of the dried Fibres of the Beef weighed but one Dram sixty Grains; that of the Veal two Drams eighteen Grains; here is another Difference of thirty Grains.

These two Excesses added together make a Total of ninety-six Grains of Parts, considered as solid, more in the Veal than in the Beef. These solid Parts added to the gummy Particles spoken of above, which are appointed to become solid for the Growth of the Animal, being very considerably more numerous in the Veal than in the Beef, might not one conjecture that if these Particles preserve in our Bodies, when we take them as *Aliment*, the same Disposition which they seem to have in the Body of the Animal whence they are taken, Veal must be agreeable to Children, because they are growing, and to sick Persons who are much extenuated, and have undergone a considerable Loss of Flesh; and that Beef would better agree with adult Persons and such as enjoy a perfect State of Health? But I offer this only as a Conjecture.

MUTTON.

Four Ounces of Mutton, taken from the Leg, distilled in a Bath Heat, yielded two Ounces six Drams thirty Grains of Phlegm.

The Flesh drained of its Humidity weighed one Ounce one Dram forty two Grains, which being placed in a Reverberatory, after

after it had been exhausted of its Principles, left in the Retort a Coal which weighed but two Drams thirty-six Grains; the Lixivium of which gave Marks of a Sea Salt, that is to say, it made not the least Alteration in a Solution of corrosive Sublimate, and precipitated a white Powder from a Solution of Mercury.

Four Ounces of the same Mutton boiled, yielded two Drams fifty-eight Grains of Extract: Hence one Pound of such Flesh must yield eleven Ounces five Drams thirty-two Grains of Phlegm; one Ounce three Drams sixteen Grains of Extract, two Ounces seven Drams twenty-four Grains of Fibres, exhausted of their Juice.

The two Drams fifty-eight Grains, distilled in a Reverberatory, afforded about as much volatile Salt as the Beef, and more than the Veal; its Crystals took a better Form. The Caput Mortuum weighed but fifty-four Grains, the Lixivium of which gave more abundant Marks of a Sea Salt than the other Flesh-meats.

The dry Fibres of this Mutton, after the Extract was made, weighed but five Drams sixty Grains; which evidently proves, that Mutton contains more nourishing Parts, and volatile Principles, than either Beef or Veal, since it leaves in its Analysis less of a fixed Matter. The Analysis of these Fibres yielded a good Quantity of volatile Salt in Ramifications, such as always results from the Analysis of the dried Fibres of Flesh-meats: The Caput Mortuum weighed two Drams; its Lixivium gave very slender Marks of a Sea Salt with Solutions of Mercury, because the greatest Part of the Salts were volatilized, or passed into a Sal Ammoniac in the Extract.

CHICKEN.

This being one of the most common kinds of Flesh, eaten alone, or with other Meats dressed with it, I undertook a like Examen of it as I did of the others. I took a Chick which weighed nine Ounces four Drams forty-eight Grains; after bruising it, I boiled it in several Waters, which produced a Jelly-like Extract, which weighed seven Drams thirty-six Grains; the Flesh and Bones, dried in a Stove, as the other Flesh-meats, weighed but one Ounce six Drams forty Grains: Whence the Chick contained six Ounces six Drams forty-four Grains of Humidity. I distilled, separately, in a Reverberatory, six Drams eighteen Grains of the dry Flesh, and three Drams nine Grains of the dry Bones, which was all I could get: The Flesh yielded some volatile Salt in beautiful Ramifications; the Caput Mortuum weighed one Dram six Grains; the Lixivium of the Coal gave no Mark of a Salt.

The Bones afforded, besides the other Principles, a small Quantity of volatile Salt, of the same Figure as that of the other Sorts of Flesh: The Caput Mortuum, which weighed two Drams eight Grains, produced nothing remarkable in the Experiments made on its Lixivium.

The Extract of the Flesh, which weighed seven Drams thirty-six Grains, yielded a volatile Salt of the same Figure as that of Beef, which however would not come over without enforcing the Fire: The Caput Mortuum weighed two Drams twenty Grains; the Lixivium of it afforded some Signs of a Sea Salt.

The COCK.

An old Cock, which weighed two Pounds two Ounces six Drams, yielded four Ounces seven Drams sixty-six Grains of gummy Extract, transparent, and very dry.

A CAPON.

The Flesh of a Capon, stripped of the Fat, and weighing one Pound seven Ounces two Drams forty-eight Grains, yielded one Ounce five Drams of Extract, which it was difficult to dry.

PIGEONS.

Two young House-pigeons, which weighed fourteen Ounces, afforded an Extract solid enough to become dry; it weighed seven Drams thirty-five Grains.

The PHEASANT.

A Pheasant, of the Weight of two Pounds, afforded a saline Extract, which could not be sufficiently dried to form a solid Extract, tho' I left it a long time in the Stove: That Extract weighed two Ounces four Drams sixteen Grains; so that this Flesh furnishes more Extract, than Beef.

The PARTRIDGE.

Two Partridges, weighing one Pound two Ounces five Drams, yielded one Ounce six Drams thirty Grains of Extract, less solid than that of the Pheasant.

The TURKEY.

A Turkey, weighing nine Pounds, yielded twelve Ounces forty-three Grains of Extract, considerably solid, which could not be dried, but always continued oily, and, as it were, resinous.

The Result of all that has been said, is, that the Extract of boiled Flesh-meats ought to be looked upon as the nourishing Part afforded by the Flesh of Animals in boiling; I don't mean by this, that the Whole of it is concerned in Nutrition, because it contains also gross Particles, which, in the Work of Digestion, are separated as useless by the Organs, in greater or lesser Quantities, according to the State of the Patient: This being supposed, we are to make it appear; what Nourishment is communicated to a sick Person from the Quantity of a Gallon of common Broth.

If, according to Custom, the Boiling consists of a Slice of Beef weighing a Pound, a Pound and a half of a Fillet of Veal, with half a Capon, which may weigh fourteen Ounces; if all these Sorts of Flesh, weighing together three Pounds six Ounces, are boiled in seven Pints of Water till reduced to three Pints, in order to make six Messes, which ought to be a Jelly when the Meat is sufficiently boiled, these six Messes will contain two Ounces five Drams thirty-four Grains of Extract at least; for the total Extract of all these Meats would be more by three Drams twelve Grains, if the Boiling were repeated as I did it, when I had a mind to have out all the nourishing Juice; and if the Patient takes the whole six in twenty-four Hours, he will consequently have received about two Ounces five Drams thirty-four Grains of Aliment, which being compared with the whole Weight of Bread and Flesh, which he may be supposed to eat in Health, appears to be more than enough: Hence the Vulgar are mistaken, in imagining that sick Persons are not sufficiently nourished with Broths.

There are Circumstances in which even Veal-water, or Chicken-water, would afford sufficient Nutriment to the Patient; for the first, which would be made with one Pound of Veal, boiled in four Pints of Water till reduced to half, would contain one Ounce one Dram forty-eight Grains of Extract; and Chicken-water, where the Chick perhaps might weigh nine Ounces four Drams and some Grains, affords seven Drams thirty-six Grains of Extract: You are also desired to take Notice, that the Oil and volatile Salts of these Extracts, which are dispersed in the Boilings, are more disengaged, and more readily pass into the Blood, than those which are still embarrassed in the gross Fibres of the Meat, and require a long Time for Digestion; not to mention, that it is easier for this Kind of Aliment, than any other, to unite with the Juices of such Plants as shall be thought proper to mix with it, in order to temper and moderate its Action in the Blood.

I shall not repeat here the Relations between Extracts of other Flesh-meats, because I have joined with this Memoir a Table, containing, in Columns, the particular Products of my Operations.

A TABLE of the PRODUCTS of EXPERIMENTS made upon FLESH-MEATS.

BEEF RAW, distilled in Balneo Mariæ.			
	Oz. Dr. Gr.		
<i>First Water.</i>			
Four Ounces of Beef yielded of the first Phlegm	2	6	36
The dry'd Flesh in Balneo Mariæ weighed	1	1	36
Total	4	0	0
<i>Extract from Beef boiled.</i>			
Four Ounces of Beef yielded of Extract	0	1	56
Weight of the dry'd Fibres	0	6	36
Total	0	8	20
Water, or Phlegm, drawn in Balneo Mariæ	2	6	36
To this must be added a second Phlegm, which could not be extracted in Balneo Mariæ	0	1	16
Total of Humidity, or Phlegm, contained in the four Ounces of Beef, 2 Ounces, 7 Drams, 52 Grains.			
Total	4	0	0
<i>The Weight of the several constituent Parts of a Pound of Beef.</i>			
One Pound of sixteen Ounces contained of Phlegm	11	6	64
Of Extract	0	7	8
Dried Fibres	3	2	0
Total	16	0	0
<i>Analysis of the Extract of four Ounces of Beef, which produced 1 Dram 56 Grains.</i>			
Volatile Salt	0	1	2
Oil and Spirit	0	0	38
Caput Mortuum, or Coal,	0	0	6
Loss	0	0	10
Total	0	1	56
A a a a			<i>Analysis</i>

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	Oz.	Dr.	Gr.
<i>Analysis of the 6 Drams 36 Grains of dried Fibres.</i>			
Volatile Salt	0	2	0
Volatile Spirit	0	0	36
Caput Mortuum, or Coal,	0	1	60
Loss	0	2	12
Total	0	6	36

VEAL RAW.
First Water.

Four Ounces of Veal yielded for the first Phlegm	2	6	54
Dried Fibres in Balneo Mariæ	1	1	18
Total	4	0	0

Extract of Veal.

Four Ounces of Veal produced of Extract	0	2	30
The dried Fibres	0	5	62
Water in Balneo Mariæ	2	6	54
To be added a second Phlegm, not extracted in Balneo Mariæ, or Loss,	3	7	2
Total	4	0	0
Water, or Phlegm, of the first Evaporation	2	6	54
Of the second	0	0	70
Total	2	7	52

The Weight of the several Divisions of the Pound of Veal.

The Pound of 16 Ounces contained of Phlegm	11	6	64
Of Extract	1	1	48
Dried Fibres	2	7	32
Total	16	0	0

Analysis of the Extract of Veal, weighing 2 Drams 30 Grains.

Volatile Salt, Oil, and Spirit	0	1	12
Caput Mortuum	0	1	0
Loss	0	0	18
Total	0	2	30

Analysis of the 5 Drams 62 Grains of dried Fibres.

Volatile Salt	0	1	66
Oil and Spirit	0	1	37
Caput Mortuum	0	2	18
Loss	0	0	13
Total	0	5	62

MUTTON distilled in Balneo Mariæ.
First Water.

Four Ounces of this Flesh yielded of the first Humidity or Phlegm	2	6	30
Dried Mutton in Balneo Mariæ	1	1	42
Total	4	0	0

Extract of Mutton boiled.

Four Ounces of Mutton produced	0	2	58
Dried Fibres	0	5	60
Water in Balneo Mariæ	2	6	30
Total	3	7	4
To this add a second Phlegm, which could not be extracted in Balneo Mariæ	0	0	68
Total	4	0	0

Weight of the several Divisions of one Pound.

The Pound of 16 Ounces contained of Phlegm	11	5	32
Of Extract	1	3	16
Of dried Fibres	2	7	24
Total	16	0	0

	Oz.	Dr.	Gr.
<i>Analysis of the Extract of four Ounces of Mutton, 2 Drams 58 Grains.</i>			
Volatile Salt	0	1	0
Oil and Spirit	0	1	0
Caput Mortuum	0	0	54
Loss	0	0	4
Total	0	2	58

Analysis of the five Drams sixty Grains of dried Fibres.

Volatile Salt, and inseparable Oil	0	3	12
Spirit	0	0	24
Caput Mortuum	0	2	0
Loss	0	0	24
Total	0	5	60

LAMB, a Pound of the Flesh without Fat.

The Extract difficult to be dried, and always moist	1	1	39
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A CHICK, Flesh and Bone together, 9 Ounces 4 Drams 48 Grains.

Phlegm	6	6	44
Extract	0	7	36
Dried Flesh and Bones	1	6	40
Total	9	4	48

Analysis of the 7 Drams 36 Grains of Extract.

Spirit, Oil, and Phlegm	0	4	15
Volatile Salt and Oil	0	0	58
Caput Mortuum	0	2	20
Loss	0	0	15
Total	0	7	36

Analysis of the dried Fibres, being 6 Drams 18 Grains.

Spirit, and a thick Oil	0	3	34
Volatile Salt	0	1	0
Caput Mortuum	0	1	6
Loss	0	0	50
Total	0	6	18

Analysis of the Bones of the Chick after boiling, being 3 Drams 9 Grains.

Spirit, Oil, and volatile Salt	0	0	69
Caput Mortuum	0	2	8
Loss	0	0	4
Total	0	3	9

An Old COCK, Weight 2 Pounds 2 Ounces 6 Drams.

The dry Extract like a Jelly	4	7	66
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A CAPON, the Flesh cleared from the Fat, 1 Pound 7 Ounces 2 Drams 48 Grains.

The Extract difficult to be dried	1	5	0
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Tame PIGEONS, two weighing 14 Ounces.

The solid Extract in Lozenges	0	7	35
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A PHEASANT, Flesh and Bones weighing 2 Pounds.

Extract of a soft Consistence	2	4	16
Dried Fibres, with the Bones	9	2	32
Phlegm	20	1	24
Total	32	0	0

Analysis of the Flesh only of the Pheasant, 4 Ounces.

Phlegm	2	6	36
Spirit and Oil	0	4	0
Volatile Salt	0	2	36
Caput Mortuum	0	2	48
Loss	0	0	24
Total	4	0	0

Analysis

*Analysis of the Extract of the Pheasant, 1
Dram, 56 Grains.*

	Oz.	Dr.	Gr.
Spirit and Oil	0	0	48
Volatile Salt	0	0	36
Caput Mortuum	0	0	36
Loss	0	0	8
Total	0	1	56

*The dried Fibres without the Bones, 6 Drams
36 Grains.*

	Oz.	Dr.	Gr.
Spirit, volatile Salt, and a thick Oil	0	5	10
Caput Mortuum	0	1	12
Loss	0	0	14
Total	0	6	36

*PARTRIDGE: Two old Partridges weigh-
ing 1 Pound 2 Ounces 5 Drams.*

An oily, or fat and humid Extract	t	6	30
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A TURKEY: A Turkey of 9 Pounds.

A fat and oily Extract	12	0	43
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*CALVES HEARTS: Two Calves Hearts
weighing 11 Ounces 4 Drams.*

Yielded an Extract which would not turn to a Jelly, nor be dried	0	3	60
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*A CALF's LIVER, weighing 2 Pounds 7
Drams.*

It afforded of a watry Extract	2	1	60
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*CALVES FEET, eight Feet weighing 6
Pounds 8 Ounces.*

	P.	O.	D.	G.
Phlegm	3	5	4	45
A gummy and dry Extract	0	8	3	27
The Bones as they came humid out of the boil- ing, with the Cartilages	2	10	0	0
Total	6	8	0	0

*Analysis of 1 Ounce of the gummy and dry Ex-
tract of Calves Feet.*

	Oz.	Dr.	Gr.
Spirit and Oil	0	3	0
Volatile Salt	0	2	18
Caput Mortuum	0	2	25
Loss	0	0	29
Total	1	0	0

Two Macreuses weighing 2 Pounds 7 Ounces.

The solid Extract, which grew moist at the Change of the Weather	2	1	50
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Mr. Geoffroy in a Memoir for 1732, pursues his Subject, and proceeds to the Analysis of other Substances used sometimes by way of Aliment, or Medicine:

Having in my former Memoir given the Analysis of some of our most juicy Foods, I now proceed to that of the most solid Parts of Animals, which are their Bones; and having, for that Purpose, made Choice of the Bones of an Ox's Leg, because they contain little Marrow, I ordered them to be carefully stripped of their Flesh, and rasped down, taking care at the same time not to break the inner Lamina, which covers the Marrow: I put a Pound of these fine Shavings, well-dried, into a Pewter Pot, exactly covered with eight Pints of Water, with which I boiled them five several times, adding fresh Water at each Boiling, and pouring the Water of each former Boiling into a Vessel by itself: The Shavings of these Bones were reduced into a whitish Kind of Pap, and the Broth, loaded with their most subtle Parts, could not be depurated without Filtration, and that too with some Difficulty: Being put into a Silver Bason, in order to evaporate, it did not thicken into a Jelly till towards the End of the Evaporation, during which no Precipitation happened.

This Jelly, or Extract, dried readily in the Air, and was reduced into a gummy, transparent, very dry Substance, which weighed three Ounces three Drams and thirty-six Grains: I call it a gummy Substance, because it remained clear and transparent, became brittle by being dried, and, as to its external Appearance, exactly resembled the Gum produced by the extravasated Sap of Trees.

An Ounce and forty-five Grains of this Substance, subjected to Distillation, yielded three Drams and eighteen Grains of

a very white volatile Salt; which crystallized itself in Ramifications, as other volatile Salts generally do: The Caput Mortuum, remaining in the Retort, weighed only two Drams and thirty-six Grains; its Lixivium had some faint Characteristics of Sea Salt, like the Caput Mortuum of the Beef, mentioned in my first Memoir.

Four Ounces of the dry white Paste which remained upon the Filtre, when subjected to Distillation by a reverberatory Fire, yielded very little volatile Salt, which was formed into flat Crystals of the Figure of Parallelopipeds, like those procured from the Extract of the Beef Broth: The Caput Mortuum lixiviated did, upon Trial, give some Marks of a fixed Alkali; and this Substance, after a new Calcination in a close Fire, ought to be looked upon as a kind of Calx, or Lime: Its Lixivium, attentively examined, left me no room to doubt of its being possessed of the Characteristic of a fixed Alkali, since it produced a red Precipitation in a Solution of corrosive Sublimate, like well calcined Hartshorn.

HARTSHORN.

Hartshorn managed in the same Manner, and in the same Quantity with the Bones of Beef, yielded a clear Broth, which became a Jelly as soon as cold; after Evaporation it left a gummy Substance, which, when dry, weighed four Ounces two Drams and sixty-three Grains.

An Ounce and forty-five Grains of this Substance, analysed by a reverberatory Fire, yielded only two Drams of volatile Salt in Ramifications, and thirty Grains of a volatile Citron-coloured Spirit, mixed with a little fetid Oil of a deep red Colour; the Caput Mortuum weighed two Drams and thirty-six Grains; its Infusion produced a greyish white Precipitation, in a Dissolution of Mercury, and in a Solution of corrosive Sublimate.

The Mass remaining after the several Boilings, when pretty dry, weighed only nine Ounces three Drams and thirty-six Grains: Four Ounces of this Substance, subjected to an Analysis, yielded one Dram and eighteen Grains of a volatile Salt, of the same Figure with that of the Beef Broth, and, like it, loaded with an Oil and a Phlegm; which, when separated with all possible Care, weighed about a Dram: The Caput Mortuum of this Substance, which weighed three Drams and twenty-four Grains, gave in its Lixivium all the Proofs and Marks of a Sea Salt; being then freed from the Remains of its volatile Oil, by Calcination, it produced a red Precipitation in the Solution of corrosive Sublimate.

I have made the same Experiments upon Ivory, thinking it proper to compare the Results of them with those made on other bony Substances, since Ivory is often used in Ptisans, Broths, and Jellies for the Sick.

IVORY.

A Pound of Ivory Shavings produced a limpid clear Broth, which coagulated in Proportion to its cooling; but, in the Evaporation, it insensibly let fall a very fine white Earth, loaded with some Quantity of an essential Salt, which obliged me to strain the Liquor again: The gummy Part, which remained after the Evaporation of this Broth, now twice filtrated, became more dry, hard and solid, than that produced from the Bones of the Beef, but less coherent than that produced from the Hartshorn: This gummy Substance weighed four Ounces seven Drams and one Grain; and when subjected to an Analysis, it first yielded a little Phlegm, then an Orange-coloured Spirit, then a white volatile Salt in Ramifications, which weighed forty-eight Grains; the thick black Oil, which it yielded last of all, weighed, together with the Spirit, three Drams and thirty-six Grains.

The Lixivium of the Caput Mortuum, which weighed three Drams and twelve Grains, produced a white Precipitation in the Solution of Mercury, and only rendered that of the corrosive Sublimate a little turbid.

The white Paste remaining after the Filtration of the Broth, afforded no concreted volatile Salt in Distillation; it only yielded a Citron-coloured Oil, and a volatile Spirit of a bluish Colour: The Whole, taken together, weighed four Drams and thirty-six Grains. The Lixivium of the Caput Mortuum, at first rendered the Solution of corrosive Sublimate turbid, and at last produced a white Precipitation, but produced no manner of Effect upon the Solution of Mercury.

These three Analyses furnish us with a very curious Observation: One would think it more difficult to extract, by boiling, the volatile Salts from solid Substances, than from those of a tenderer Nature; yet, in boiling, they deposit in the Water their Principles, and volatile Salts, sooner, and in greater Quantities, than the Fleashes of Animals: For, in my first Analyses made last Year, tho' I had stripped, if I may so speak, those Fleashes of their Principles by boiling, yet their Fibres, when dry, yielded a considerable Quantity of volatile Salt: This, Mr. Doddard has asserted; this, Experience has confirmed. In comparing the Analysis of Beef with that of

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its Bones, we find, that six Drams and thirty-six Grains of dry Fibres, that remained of four Ounces of Flesh, have yielded two Drams of volatile Salt and Oil; whereas four Ounces of the dried white Mass, produced from boiled Bones, have yielded only three Drams and an half of Spirit, impregnated with a very little fetid Oil, and with so small a Quantity of volatile Salt, that it could not be weighed. That which, in the Analysis of Flesh Broths, appeared to me an essential Salt, probably remains closely united to the Bones during their Growth; since in the Analysis of Bones, it does not discover itself in the same Order in which the same Salts discover themselves in the Analysis of Flesh. An Extract from Flesh has first yielded me an urinous Sal Ammoniac, of the Figure of Parallelopipeds; their Fibres, a volatile Salt in Ramifications, which nevertheless was of a more fixed Nature, since it was forced out by the Violence of the Fire, which alcalizes it. The Bones of Beef, on the other hand, have, in boiling, freed themselves of the ramified volatile Salts contained in their Laminæ; and these same Laminæ, after being long boiled in Water, have yielded an urinous Sal Ammoniac, though in a small Quantity, like that which I have drawn from an Extract of Flesh. Thus one may conceive, that Bones are more easily penetrated by Water than the Fibres of Flesh, which, by their pliant yielding State, elude, as it were, the Action of that Fluid.

Hartshorn is at first a fleshy Substance, as may be observed in the small sprouting Horns of the Deer; but, in Proportion as the Horn is nourished and augmented, that which before consisted of a fibrous fleshy Substance, and a thick Skin, furnished with Vessels, becomes so dry, that the Juices not being able any longer to enter it, that Horn falls off, being thrust out by a new sprouting Horn. If an Observation of the Hartshorn was not sufficient to prove it a fleshy Substance, yet the Chymical Analysis of it would almost afford a convincing Proof, that it is so; since it is a Substance which yields Principles, which, of all others, come the nearest those of Animal Flesh: Its Extract yields a sufficient Quantity of volatile Salt, which indeed appears in Ramifications; and the gross thick Substance, that remains after Filtration, yields one Dram and eighteen Grains of volatile Salt of an urinous Nature, which is a considerable Quantity, and makes Hartshorn approach nearer to a fleshy Substance than to that of Bones, since those latter furnish scarce any of that Salt.

Ivory is a Substance which pretty much resembles Bones, and like them consists of several Laminæ, or Plates. If we saw Ivory into thin Plates, and boil them in Water, these Laminæ, or Plates, may be easily separated; for they disentangle themselves from one another, and at the same time preserve their almost circular Figure. It is probable, that the Teeth of the Elephant have not, at first, all that Solidity which we find them endowed with; that they have their Vessels corresponding to the Pivot which fills the cony Hollow of the Base of the Teeth; and that, at last, being arrived at their full Growth, which they acquire in the Way of Strata, or Layers, and in many Years, the Vessels, we now suppose, are dried up and disappear. Ivory, upon its Analysis, yields no other Principles than those of Bones; that is to say, all the volatile Salt in the Extract, and almost none in the white Mass, stripped of these Juices. Ivory contains a greater Quantity of Juice than Bones, but has nevertheless a smaller Portion of volatile Salt in it: One might assign as a Reason for this, that the Ivory comes from warm Countries; and that in its Way to the African Ports, the Heat of the Climate has insensibly dissipated the volatile Salts.

The Analysis of a Chicken confirms my Position, that the younger the Bones are, the more immediate Approaches they make to the Nature of Flesh; since three Drams and nine Grains of Chickens Bones yield thirty-five Grains of an urinous or an ammoniacal Salt; an Extract of Chicken Broth does not yield its volatile Salt but by means of a strong Fire, and that Salt resembles urinous Salts; that is, it is of the Figure of Parallelopipeds; whereas that yielded by the Fibres deprived of their Juices, was in beautiful Ramifications, and under a drier Form.

W H E Y.

I also examined Whey, and for that Purpose took twelve Pints of new Milk, without any Mixture; and after curdling it with one Dram of *Runnet*, I put it on a gentle Fire, to produce a more thorough Separation of the Whey, which, after Filtration, weighed eight Pounds; while the Curd in the mean time weighed only two Pounds and seven Ounces: After having evaporated this Whey, in *Balneo Mariæ*, almost to Dryness, (for the Whey does not become thoroughly dry, on the contrary it becomes very suddenly moist, if taken off the Fire for ever so short a time; I say, after having almost evaporated it to Dryness) its Weight was nine Ounces and twenty-four Grains.

This Extract, subjected to an Analysis, yielded Phlegm, an acid Citron-coloured Spirit, and then a pretty thick Oil;

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there were, in all, four Ounces six Drams and thirty-six Grains of Liquor, without any Appearance of volatile Salt. The Caput Mortuum, which weighed three Ounces and six Grains, being exposed to the Air, became moist, and its Lixivium had the Marks of a Sea Salt. As there was enough of it to afford its Salt, I had from it cubical Crystals like those of Sal Gemmæ, or those of Salt regenerated by the Spirit of Salt upon the Salt of Tartar; and this is a Proof, that there is a Sea Salt in the very first Juices of Animals. The Caput Mortuum dried, and thoroughly calcined, in its Lixivium had the Marks of an Alcaline Salt, and produced a red Precipitation in a Solution of corrosive Sublimate.

As Fish are also sometimes used in making Broths, I have examined some of them.

C A R P.

Upon boiling a Pound of Carp, clear of Skin and Bones, in four Pints of Water, like other Victuals, and frequently repeating the Boilings, the Broth, filtrated, let fall a Precipitate like that of Beef; when it was evaporated to the Consumption of half, and then filtrated afresh, the dry Extract weighed one Ounce and eight Grains.

A Dram and fifty-six Grains of this Extract analysed, in order to be compared with the same Weight of Extract of Beef, yielded half a Dram of volatile Salt, distinctly formed into Ramifications; its Oil, which was of a yellow brownish Colour, and mixed with the Spirit, weighed half a Dram; and the Caput Mortuum, in the Retort, forty-eight Grains; so that there were eight Grains of Loss.

The Lixivium of the Caput Mortuum produced a white Precipitation in a Solution of Mercury, which is a Proof of its being a Sea Salt, and a greyish Precipitation in a Solution of corrosive Sublimate.

The Mass of dried Fibres weighed one Ounce six Drams and twelve Grains.

Six Drams and an half of this Mass yielded a Dram and an half of volatile Salt in Ramifications; the Oil and the Spirit weighed two Drams sixty Grains; and the Caput Mortuum, remaining in the Retort, one Dram six Grains; its Lixivium produced a white Precipitation in the Solution of corrosive Sublimate, but produced no Change in that of Mercury.

It is a common Opinion, that Fish, being nourished in Water, cannot contain so much nutritive Juice as the Flesh of Land Animals; which we may be assured of, by adverting to the following Proportions:

Beef has no less Humidity than one Ounce two Drams and sixty Grains.

Extract of Beef contains thirty-eight Grains of volatile Salt more than the Carp, and two Grains more of Oil and Spirit.

The dried Fibres of Beef, compared with those of the Carp, contain thirty-six Grains more of volatile Salt; and the Carp yields in volatile Spirit, and in fetid Oil, two Drams and twenty-four Grains more than the Beef.

P I K E.

Four Ounces of Pike's Flesh, boiled like the Carp, yielded two Drams and twenty-four Grains of solid Extract: This Extract, subjected to an Analysis, yielded forty-six Grains of a Citron-coloured Oil, mixed with the Spirit; and the volatile Salt, which came last, was of an urinous Nature, and weighed thirty Grains: The Caput Mortuum weighed one Dram eleven Grains; its Lixivium produced a white Precipitation in a Solution of Mercury, but had no Effect upon that of corrosive Sublimate: The dried Fibres, which weighed only four Drams fifty-nine Grains, yielded two Drams and fifty-six Grains of Oil and Spirit of a yellowish Colour, and sixteen Grains of a volatile urinous Salt: The Lixivium of the Caput Mortuum, which weighed one Dram fifty Grains, did at first produce a white Precipitation in a Solution of Mercury, then a yellowish one, and at last the Whole became black; being poured upon a Solution of corrosive Sublimate, it produced a white Precipitation, which, without changing, remained in the same State.

F R O G S.

Two Pounds of the Flesh of Frogs, of which I only took the Thighs, and the half of the Legs, with the small Bones, yielded a white Broth, which afforded one Ounce one Dram and thirty-six Grains of Extract, without forming itself into a Jelly. One Dram and fifty-six Grains of this Extract yielded fifty-six Grains of volatile urinous Salt, and then forty-eight Grains of volatile Spirit and Oil somewhat thick: The Caput Mortuum, which remained in the Retort, weighed thirty-six Grains: Its Lixivium produced no Effect upon the Solution of Mercury, but produced a white Precipitation in that of corrosive Sublimate.

The dried Fibres, with their Bones, weighed three Ounces four Drams and thirty-six Grains; six Drams and thirty-six

‘ six Grains of these Fibres yielded two Drams of volatile Salt in Ramifications, which was very dry, and half a Dram of Spirit and Oil of a deep yellow Colour: The Caput Mortuum, which remained, weighed two Drams: Its Lixivium produced no Precipitation in a Solution of Mercury, but a white one in that of the corrosive Sublimate.

TORTOISE.

‘ A small Land Tortoise, which weighed thirteen Ounces and eighteen Grains, being separated from its Shell, the Flesh, with the Head, the Feet, and the Tail, stripped of the Skin, weighed eight Ounces, exclusive of the Intestines, which were thrown away: The Broth produced from them became a little gelatinous; and being filtrated, and evaporated to Dryness, it formed an Extract which weighed five Drams and six Grains.

‘ In distilling it, I procured from it first a Phlegm, then a reddish volatile Spirit, and afterwards a pretty rich Oil, the Whole together weighing fifty-four Grains: The Lixivium of the Caput Mortuum, which weighed two Drams and twenty-four Grains, produced no Change in a Solution of corrosive Sublimate; but immediately produced a white Precipitation in a Solution of Mercury, and soon after a blackish grey one, because that Lixivium was loaded with Sulphur: The fleshy Fibres separated from their Juices, and the Bones, when dried, weighed six Drams and forty-eight Grains; in analysing them they yielded a Phlegm, a Spirit, and an Oil, weighing two Drams and sixty-six Grains of volatile Salt in Ramifications; the Mass, which remained in the Retort, weighed only three Drams and forty-six Grains; its Lixivium, like the before-mentioned, only produced a white Precipitation in Solution of Mercury.

LOBSTERS.

‘ Four Ounces of Lobster, pounded and well washed, yielded a gelatinous Broth; the Extract from which, when very dry, weighed two Drams and thirty-three Grains: This Extract yielded Phlegm, a little volatile Spirit, a little Oil, and so little volatile urinous Salt, that it was impossible to collect it in order to be weighed: The Whole, taken together, weighed one Dram twenty Grains; and the Caput Mortuum, in the Retort, one Dram: Its Lixivium produced, at first, a white Precipitation in Solution of Mercury, which afterwards acquired a grey blackish Colour; but produced no Change in the Solution of corrosive Sublimate: The gross Matter from which the Extract was made, when dry, weighed six Drams and thirty-six Grains; and, when subjected to an Analysis, yielded a Phlegm, a Spirit, a fetid Oil which weighed two Drams four Grains, and a Quantity of volatile Salt; from which twenty Grains, in a dry Form, and in Ramifications, were procured: The Lixivium of the Caput Mortuum, which weighed only one Dram, produced a yellowish white Precipitation in a Solution of Mercury; but had no remarkable Effect upon that of corrosive Sublimate.

VIPERS.

‘ As the Viper is used in Broths, in Powder and in Troches, I have examined it with such a Degree of Attention, that one may safely rely on the Detail I am now to give.

‘ I weighed very exactly two live Vipers, and their Weight amounted to three Ounces two Drams eighteen Grains: I cut off their Heads and Tails, which weighed two Drachms and a half; in cutting them they yielded fifty-four Grains of Blood; their Skins were taken off, that so their Ovaria and Livers might be got from them: The two Skins, and Entrails, weighed four Drams and fifty-four Grains: The two Trunks, with the Eggs and Livers, weighed one Ounce six Drams and thirty-six Grains. There were thirty Grains of Loss or Evaporation. I then took a Part of another Viper to make up the two Ounces: I made a Broth of these Vipers, cut in the ordinary Manner; which, after Filtration and Evaporation, reduced itself into a gelatinous Extract, which, when dry, weighed one Dram and thirty-six Grains.

‘ The Fibres and dry Bones, after boiling, weighed three Drams and sixty-six Grains; so there was in two Ounces of the Trunks of the Vipers, an Ounce two Drams and forty two Grains of Phlegm.

‘ That I might still, with the greater Accuracy, assure myself of the Weight of all the Parts of the Viper, I began to make my Observations upon fresh Vipers; and accordingly got one of the largest Kind, which weighed, when alive, three Ounces six Drams and an half.

‘ The Head and the Tail, when cut off, weighed, together, one Dram six Grains.

‘ The Blood, yielded by the Viper, one Dram eight Grains.

‘ The Skin, four Drams sixty-two Grains.

‘ The Liver, one Dram fourteen Grains.

‘ The Heart, six Grains.

‘ The Gall-bladder, seven Grains.

‘ The Fat, three Drams forty-four Grains.

‘ The Entrails, four Drams sixty Grains.

‘ The Trunk itself, one Ounce three Drams and sixty-three Grains.

‘ Thus there were, in the Whole, one Dram and fifty-two Grains of Humidity lost by Dissipation.

‘ The Trunk, when dry, weighed three Drams seventy-one Grains; so that it contained seven Drams and sixty-four Grains of Humidity.

‘ The Blood, when dry, seventeen Grains and a half; Humidity sixty-two Grains and a half.

‘ The Heart, when dry, one Grain and a quarter; Humidity, four Grains and three quarters.

‘ The Liver, when dry, forty-three Grains and a half; Humidity, forty-two Grains and a half.

‘ The Gall-bladder, when dry, one Grain and a half; Humidity, five Grains and a half.

‘ The Skin, when dry, one Dram seventeen Grains; Humidity, three Drams and forty-five Grains.

‘ The Head and Tail, when dry, twenty-eight Grains and a half; Humidity, forty-nine Grains and a half.

‘ The Trunk of a Viper, whose Skin was taken off, and weighed four Drams fifty-four Grains, yielded, by boiling, thirty Grains of a gelatinous Extract. The Flesh, dried and separated from the Bones, weighed sixty-seven Grains; the Bones, dried, thirty-six Grains and a half; so that the Trunk of the Viper contained two Drams sixty-four Grains and a half of Phlegm. We may be readily assured, that the ordinary Broth of a Viper, which weighs only four Drams and fifty-four Grains, is only impregnated with about thirty Grains of the Substance of the Viper; and that, when one takes the smallest Dose of Viper Powder, which is twelve Grains and a half, or three Quarters of a Grain, the Turn of the Balance being subject to vary, this is equivalent to thirty-seven Grains and a half of recent Vipers Flesh. We may also know, from this Calculation, what we ought to think of the gelatinous Parts, when drawn from the Trunks of Vipers, to be used in Troches. For, suppose we use four Ounces of the Trunks of Vipers, whose Skins are newly taken off, there may be drawn from them one Ounce fourteen Grains and a quarter Grain of Extract from the Broth, or the dried Flesh; and there will be found, of what remains, three Drams thirty-three Grains and three quarters of a Grain; and two Ounces three Drams and twenty-four Grains of Phlegm and Moisture.

‘ A Viper’s Liver and Heart, which weighed sixty-one Grains, yielded, by the Evaporation of the Broth, three Grains of a gelatinous Extract; and the Heart and Liver dried, after boiling, weighed no more than eighteen Grains and a half.

Analysis of the Extract of Viper Broth.

‘ I took the Extract of the Broth made from two Ounces of Viper, the Heart and Liver included; it weighed one Dram and thirty-six Grains: It yielded in Oil, Spirit, and volatile Salt, of the Figure of Sal Ammoniac, fifty-four Grains: The Caput Mortuum, remaining in the Retort, weighed also fifty-four Grains; and its Lixivium had the Marks of a Sea Salt. The dried Fibres, and the Bones, which weighed three Drams and sixty-six Grains, yielded in Spirit, in Oil, and in volatile ammoniacal Salt, one Dram and fifty-four Grains. The Caput Mortuum, which weighed only two Drams and six Grains, by its Lixivium produced a white Precipitation in a Solution of Mercury.

‘ To make the Analysis complete, I took the Bones of Vipers, which, by boiling, had been freed of all their Juice, and then of all their Fibres, by washing them thoroughly in Water. Two Ounces of these Bones, well dried, yielded, when subjected to an Analysis, two Drams and forty-four Grains of volatile Spirit and Oil. The volatile Salt, which had adhered in a dry Form to the Sides of the Vessel, and which was crystallized like the volatile Salt of Urine, was found to weigh seventy Grains. By still augmenting the Fire for five Hours, there were twelve Grains of volatile Salt in Ramifications, like that which is drawn from Hartshorn. I procured eighty-two Grains of volatile Salt, in a dry Form, from two Ounces of Viper Bones, which one would have imagined destitute of all their Principles; and this Abundance of volatile Salt is almost equal to that which is drawn from the Hartshorn. The Lixivium of the Caput Mortuum of these Bones, did not change a Solution of corrosive Sublimate, but only discovered some Marks of Sulphur.

‘ This Analysis of the Bones of Vipers proves, that the Antients were in the right to boil Vipers, in order to draw out their Principles in the Troches destined for the *Zheriac*; and that the Bones have nothing noxious, nor even useless, in that Antidote; since being disentangled, and rendered friable by boiling, they furnish a Substance like Hartshorn prepared in boiling Water: But what ought to make us regard them as useful in this Composition, is, that the preceding Analysis

B b b

demonstrates,

‘ demonstrates, that they contain almost as much volatile Salt as
‘ Hartshorn.

B R E A D.

‘ I shall close this Memoir by giving the Analysis of Bread,
‘ in order to shew how much Extract, and grosser Parts, Bread,
‘ managed like other Aliments, and prepared by reiterated Boil-
‘ ings, would yield; and afterwards what Principles it yields,
‘ when subjected to Distillation: But I must advertise the
‘ Reader, that the Experiments upon Bread vary according to
‘ the Differences of Breads, according as the Meal is fine or
‘ coarse, and the Bread itself high or low baked.

‘ I chose, for my principal Experiments, a kind of Bread
‘ which, to me, appeared to have the least Mixture of hetero-
‘ geneous Substances in its Composition, as having neither Barm,
‘ Milk, nor Salt. I took, at different times, four Ounces of
‘ this Bread, which was baked the Day before; I took the Crust
‘ off, because it might, as well as the Degree of baking, acce-
‘ lerate or retard the drying of it, which is more equally per-
‘ formed upon the Crumb.

‘ Four Ounces of this Crumb, well dried, were reduced to
‘ two Ounces seven Drams and thirty-six Grains.

‘ The Crumb and the Crust cut in small Slices, as it were
‘ for Pottage, did not diminish so considerably, by reason of the
‘ Crust, which is dry; and four Ounces of the one, and of the
‘ other, dried at the same Fire, and at the same time, weighed
‘ three Ounces and six Grains.

‘ The Extract of it was made with all possible Care, but the
‘ Decoction could not be filtrated, though made with a pretty
‘ large Quantity of Liquor; so I was obliged to allow it to set-
‘ tle at every different Boiling, and put the best clarified Part
‘ of it into a Vessel by itself.

‘ The Decoction, clarified from the Crumb of the Bread,
‘ was reduced by Evaporation into a gummy Extract, tolerably
‘ transparent, and weighing six Drams: The remaining Part,
‘ after all the Washings and Boilings were over, being rendered
‘ so dry as to break, weighed no more than one Ounce seven
‘ Drams and fifty-four Grains, or two Ounces within eighteen
‘ Grains.

‘ The Bread which had its Crust yielded, by the same Process,
‘ an Ounce two Drams and eighteen Grains of Extract; and
‘ the Mass, remaining after the Boilings, weighed an Ounce
‘ four Drams and fifty Grains.

‘ The six Drams of Extract, analysed as above, yielded a
‘ Phlegm, an acid Spirit of an Orange Colour, and a fetid Oil,
‘ which, together, weighed three Drams. The Caput Mor-
‘ tuum weighed two Drams: Its Lixivium produced a very
‘ slight Precipitation in a Solution of Mercury in Spirit of Ni-
‘ tre; which indicates a light Ammoniac, or urinous Salt,
‘ since the same Lixivium produced no Effect upon a Solution
‘ of corrosive Sublimate.

‘ The dried Paste which remained after the Boiling, and
‘ which weighed two Ounces within eighteen Grains, yielded
‘ the same Principles which the Extract did; and the Liquors
‘ drawn from it, weighed in all seven Drams and eighteen
‘ Grains. The Caput Mortuum, remaining in the Retort,
‘ weighed six Drams and forty Grains. Its Lixivium produced
‘ no Effect in the Experiments I made with it.

‘ By these Experiments we may be assured, that in a Pound
‘ of such Bread as I have mentioned, and used the Day after
‘ baking, there will be three Ounces seven Drams and forty-
‘ eight Grains of Moisture; since that Pound, when dry, will
‘ weigh no more than twelve Ounces and twenty-four Grains;
‘ and that it will yield five Ounces and one Dram of Extract,
‘ which is probably the Matter which, by Digestion, is sepa-
‘ rated from it for the Nourishment of the Body, and six Ounces
‘ and three Drams of a gross crude Matter.’ *Memoires del*
Acad. Roy. des Sciences.

ALINDESIS, Ἀλινδῆσις, Ἀλινδῆσις, an Exercise of the Body,
mentioned by *Hippocrates* in his second Book *de Vita Ratione*,
Ἀλινδῆσις, παρὰ πλῆθος τῇ πάλῃ διαπρησάμεναι. *Ξηραίνει ὃ μάλλον*
διὰ τὴν κίνησιν, καὶ σαρκοὶ ὕδωρ. “Rolling on the Ground has
“nearly the same Effect as Wrestling; but it dries more, be-
“cause of the Dust, and is less productive of Flesh.” And
again, in his *Treatise de Insomniis*, Τριψίσι δὲ μὴ ἔσω, μὴ δὲ πάλῃ,
μὴ δὲ ἀλινδῆσις. “Neither let Friction, nor Wrestling, nor
“Rolling in the Dust be used.”

This Exercise consisted in rolling in the Dust, after being
anointed with Oil.

ALINTHISAR, the same as *Vulva* or *Uvula Proidentia*. See
UVULA.

ALIOCAB, Sal Ammoniac. It is also called *Alemzadar*.
Castellus from *Rulandus*.

ALIPZENOS, Ἀλιπζανός, Ἀλιπζανός, from α Negative, and
λιπαίνω, to grow fat. A Word used to express external dry
Medicaments, or Remedies which had no pinguous Ingredient
in their Composition; and thus it is explained by *Celsus* in the
following Passage: “There are no Plasters of greater Use
“than those which are immediately laid to green Wounds,
“and called *ἔμπλα* by the *Greeks*. For they resolve Inflam-

“mations, unless very violent, and even then they very much
“abate their Violence, and close and cicatrize those Wounds
“which suffer no Inflammation. They are made up of In-
“gredients that are not pinguous, and are therefore called by
“the *Greeks* Ἀλιπζανός.” L. v. Chap. 19. They were op-
posed to the Emplastra λιπαρά, which were made of pinguous
Ingredients. *Galen* called them Ἀλιπζή.

ALIPASMA, from ἀλιεῖω, to anoint. A Powder which,
when mixed with Oil, is to be rubbed over the Body, in order
to prevent Sweat. *Blancard*.

ALIPILI, Servants attending upon Baths; so called from
their being employed to pull off (*Alarum Pilos*) the Hair of the
Arm-pits with Tweezers.---*Castellus*. For this Purpose they
also applied Plasters, called *Dropaces*, made of Pitch and Rosin,
which, being torn suddenly off, pulled off the Hair together
with them; or they were anointed with certain Unguents called
Pfilitra, which had the Power of bringing off the Hair. Hence
the Men who performed this Office were called *Dropaciflæ* and
Alipilarii, and the Women *Picatrices* and *Partiltriæ*. *Le Clerc*
Hist. Med.

ALIPTÆ, (from Ἀλιεῖω, to anoint) Servants belonging to
the Baths, whose Business it was to anoint Persons after bathing.
“This they did at first under the Direction of the Physician,
“who was himself above this mean Office: Whence they were
“called, among the *Romans*, *Unciores*, or *Reunciores*, and were
“generally of a servile Rank, as *Pliny* testifies of *Prodicus* the
“*Selymbrian*, *Mediastinis Reuncioribus vestigal invenit*. [He
“received Wages among the servile Herd of Anointers.] But
“after they had acquired a Dexterity in this very meanest
“Branch of the Art, they began, by Degrees, to shake off
“their Dependence upon the Physicians, and at last engrossed
“it into their own Hands; nor contented with this, assumed
“first the Name of *Iatroaliptræ*, and soon after that of *Physi-*
“cians.

“This, at length, brought a Reflection upon Physicians in
“general, many Slaves having learnt this Art, which they prac-
“tised in the Houses of the Nobility, especially among the *Ro-*
“mans, at a very low Rate: Whence it comes to pass, that
“many idle People will object to Physicians, even at this
“Day, that they were no better than Slaves at *Rome*; though
“they cannot fix this Reproach upon any but such as our mo-
“dern Waiters at the *Bagnios*; for these are the only true Suc-
“cessors of the antient *Aliptræ*, who, while Athletic Exer-
“cises were in Fashion, managed the Business of Bathing,
“Friction, and Anointing.”

Schulzii Hist. Med.

The *London Dispensatory* directs the following Troches under
the Name of *Trochisci Aliptræ Moschatae*, “Balsamic Troches
“with Musk.”

Take of the purest Labdanum three Ounces; of strained
Styrax one Ounce and a half; of Benjamin in Powder one
Ounce; of Aloes Wood two Drams; of Ambergrease one
Dram; and of Musk half a Scruple. Let the Labdanum be
rubbed in a Brass Mortar with an Iron Pestle, both warm,
and rubbed over with an Almond with a little Rose Water,
until by Agitation it becomes dissolved: Then put in the
Styrax and Benjamin, which manage the same way; and
lastly, put in the Aloes Wood in Powder, with the Musk
and Ambergrease dissolved together, in another Mortar
with Rose Water; and when the whole Composition is
almost cold, form it into Troches. *S. A.*

“This is from a Prescription of *Nicolaus*, and is transcribed
“into the *Augstane* and College Dispensatories, with half a
“Dram of Camphire, which is here omitted, as giving to it
“a Flavour very disagreeable to most Persons.”---*Quincy's*
London Dispensary.

ALISMA. This is the Ἀλίσμα *Dioscorid.* in the Opinion of
Matthioli. *Arnica* Offic. *Schrod.* 20. *Arnica Officinarum*,
Buxb. 98. *Arnica Schroderi*, *Rupp.* *Flor. Jen.* 141. *Doro-*
nicum sive Alisma & Arnica Germanorum, *Cod. Med.* 46. *Doro-*
nicum Germanicum, *Park.* 320. *Raii Hist.* 1. 276. *Doroni-*
cum plantaginis folio alterum, *C. B.* 185. *Tourn. Inst.* 487.
Boerh. Ind. A. 100. *Hist. Oxon.* 3. 127. *Buxb.* 98. *Doro-*
nicum Germanicum foliis semper ex adverso nascentibus villosis,
J. B. 3. 19. *Chab.* 339. *Calendula Alpina*, *Ger.* 603. *Emac.*
740. *GERMAN LEOPARD'S BANE.* *Dale.*

Alisma is by some called Alcea, by others Damasonium, by
some Acyrus, and again by others Lyrus. Its Leaves are like
those of Plantain, only narrower, with the convex Side towards
the Ground: It has a slender smooth Thyrsoidal Stalk above a
Cubit high, and bearing small Heads at the Top; the Flowers
are thin, and of a white Colour, inclined to a palish Yellow;
the Roots are like those of black Hellebore, slender, scented, of
an acrid and moderate fat Taste: It delights in a watery Soil.
(This Description is transcribed by *Oribasius*.)

A Dram or two of the Root, taken in Wine, cures those
who have eaten of the *S. Halluc.* or have been bit by a Toad,
or drank too much Opium. It is also good for the Gripes and
Dysentery,

Dysentery, either drank alone, or with an equal Quantity of Wild Carrots Seed; and is of good Efficacy in Convulsions and Hysteric Fits. The Herb binds the Belly, but provokes the Menfes, and discusses Tumours, if applied. *Dioscorides, Lib. ii. cap. 169.*

We have found, by Experience, that the Decoction of the Root of Damafonium, or Alisma, in Water, being drank, breaks the Stone in the Kidneys. *Actius Tetr. i. Serm. i. Tit. Damafonium.*

Alisma is the fourth Species of Doronicum; it is a Plant which sends from its Root many Leaves, resembling those of Plantain, fibrous, somewhat thick, downy, and spreading upon the Ground. From the Middle of these proceeds a downy Stem, which grows to the Height of a Foot, or a Foot and a half, bearing Leaves a great deal smaller than those at the Bottom; and at the Top a yellow radiated Flower, resembling that of Doronicum, or common Leopard's Bane, but larger: Its Seed is longish, and of a sharpish, acrid, and fragrant Smell: Its Root is reddish, surrounded with long Filaments, like that of black Hellebore, spreading under Ground; of a sharp, aromatic, and agreeable Taste: It grows in hilly Places; it contains a great deal of Salt and Oil.

It is diuretic, sudorific, and sometimes a little emetic: It dissolves coagulated Blood. *Lemery des Drogues.*

It is found by frequent Experience to be a Discussive and a Vulnerary, and is counted the very best and only Panacea for such as have hurt themselves by Falls from high Places.--*Ephem. Germ. An. 9, & 10.* The Country People use it, instead of Hellebore, for the Murrain among Cattle.--*Hoff. Cat. Abter. Dale, p. 88.*

Tournefort mentions five Sorts of Alisma. The first is the *Alisma repens, foliis gramineis & subrotundis. Damafonium radicles emittens ex geniculis. Ranunculus palustris, foliis gramineis & subrotundis. Petit. Epit. pag. 47. Damafonium repens, Potamogetonis rotundifolii folio. Tab. 4. Fig. 9. Aët. Ac. Reg. Sc. 1719. Vail. 46,* in the great Lake below the old Castle at Llanberys.--*Mr. Brewer.* The second is the

Alisma Cord. in Diosc. Ranunculus palustris, Plantaginis folio ampliore. Inst. 292. Plantago aquatica latifolia. C. B. Pin. 190. Plantago aquatica. f. B. 3. 787. Plantago palustris sive aquatica. Tabern. Icon. 734. Great Water-Plantain.

Tabernæmontanus has a very good Figure of it; we must not confound it with that which *Lobel* calls *Plantago aquatica, foliis Betæ aut Plantaginis, flore Gallii albi*, as *C. Bauhin* does: *Lobel's* Figure gives a better Representation of the following. The third is the

Alisma angustifolium umbellatum, capitulis rotundis. Ranunculus palustris, Plantaginis folio angustiore. Inst. 292. Plantago aquatica angustifolia. C. B. Pin. 190. Plantago aquatica minor. Tabern. Icon. 734. The lesser Water-Plantain. I have not found this about London: It is common in the Moors about Cambridge.

We must not confound the *Plantago aquatica humilis, angustifolia & longifolia Lob.* with this Plant, as *C. Bauhin* has done: We need but compare the Figures of *Tabernæmontanus* and *Lobel*, to see the Difference. The fourth is the

Alisma umbellatum, foliis angustissimis. Ranunculus aquaticus, Plantaginis folio angustissimo. Inst. 292.

The Root of this Plant is a Tuft of white capillaceous Fibres: The Leaves are two or three Inches long, two or three Lines broad, pale-green, having Nerves running lengthwise, pointed, sustained by a pretty long Pedicle, insipid at first, but afterwards tasting something like Coriander: The Stalks are usually crooked, naked, one Line thick, terminated by an Umbel of Flowers, the Rays of which are an Inch and a half long; each Flower has three Petals, which are almost round, pointed, white, inclining to a flesh-colour, with a yellow Nail: The Empalement consists of three hollow, yellowish-green, smooth, shining Leaves, a Line and half long, pointed, channelled; each Flower has six very short Chives, each loaded with a yellow Summit; the Pointal of the Flower is a little greenish Button, which becomes afterwards three Lines diameter, and sustains several clustered Seeds, channelled, one Line long, pointed, of the same Taste with the Leaves.

It flowers in July and August: It varies according to the Soil. I have observed it at Montpelier a Foot high, and with two or three Umbels, one above another.

Glusius's Description of his *Plantago aquatica minima*, would agree well enough with this Plant, if he did not affirm, that the Fruits open into two Parts, and inclose small Seeds; which agrees better with the Damafonium. The fifth is the

Alisma humile, supinum, angustifolium. Ranunculus palustris, Plantaginis folio, humilis & supinus. Inst. 292. Plantago aquatica, humilis, angustifolia & longifolia. Lob. Icon. 350.

This Species is very well represented by *Lobel's* Figure.

ALISTELES, Sal Ammoniac. *Rulandus.*

ALITURA, Nutrition. *Blancard.*

ALKAFIAL, Antimony. *Rulandus.*

ALKAHESI. See ALCAHESI.

ALKALE, (*Oleum Gallinæ*) the Fat or Oil of a Hen. *Rulandus.*

ALKALI. See ALCALI.

ALKALIA, (*Vas*) a Vessel. *Rulandus.*

ALKALID, ALKES, or ALCOB, (*Æs ustum*) burnt Brass. *Rulandus.*

ALKANT, either Mercury, or a kind of Ink. *Rulandus.*

ALKANTUM, burnt Brass, or a kind of Aromatic, or, according to some, Arsenic. *Rulandus.*

ALKANRI, or ALCANRI, the Name given by *Ætius* to a particular Electuary or Confection, now out of Use. *Castellus.*

ALKARA, or ALCARA, a chymical Cucurbit, called so from its Shape, which is like that of the Cucurbita or Gourd. *Rulandus.*

ALKARANUM, *Rulandus* explains this *Duene viride*. See DUENEC.

ALKASA, the same as ALKAZOAL, or ALBOT, which *Rulandus* interprets a Crucible.

ALKAUT, ALMARKASITA, Mercury. *Johnson*, who by a Mistake transcribes *Alcaut* for *Alkant*, from *Rulandus*.

ALKAUTUM. *Johnson*, the literal Transcriber of *Rulandus*, also mistakes this for *Alkantum*.

ALKEKENG. A Plant thus distinguished:

Alkekengi, Halicacabum, Offic. Alkekengi Officinarum, Tourn. Inst. 151. Elem. Bot. 126. Boerh. Ind. A. 2. 66. Dill. Cat. Giff. 83. Alkekengi Tournefortii, Rupp. Flor. Jen. 38. Solanum vesicarium, C. B. Pin. 166. Solanum vesicarium vulgatus repens, fructu & vesica rubra, Hist. Oxon. 3. 526. Halicacabum, Ger. 271. Emac. 342. Solanum Halicacabum vulgare, J. B. 3. 609. Chab. 522. Raii Hist. 1. 681. Solanum vesicarium sive Alkekengi, Park. Parad. 532. Halicacabum, Rivin. Halicacabum sive Alkekengi vulgare, Park. Theat. 462. WINTER CHERRY. Dale.

The Root of the Winter Cherry runs creeping in the Earth, shooting out in the Spring several brownish Stalks about two Foot high, somewhat angular, about a Finger thick, and not much branched, beset with many dull-green Leaves, broad at Bottom, and ending in a sharp Point somewhat waved about the Edges, in Shape like the common Nightshade, but larger. The Flowers come forth at the setting on of the Leaves, on long Foot-stalks, each Flower being a single Leaf, divided into five Segments of a white Colour, with yellow Stamina in the Middle; when the Flower falls off, its Calyx is extended into a large thin roundish Husk or Bladder, as big as a Walnut, first greenish, and as it grows to Maturity, of a reddish Colour, including a Berry of the Bigness and Colour of a red Cherry, containing a great many small flat Seeds in a clammy pulpy Juice. They grow with us in Gardens, where they are easily propagated; it flowers in July and August, and the Fruit is ripe in September. The Leaves and Berries are used.

The Leaves are cooling, and of the Nature of common Nightshade. The Berries are a singular good Diuretic, and useful against the Gravel and Stone: Being boil'd in Milk, and sweetened with Sugar, they cure the Heat of Urine, making bloody Water, and Ulcers in the Kidneys and Bladder. They help the Jaundice, by opening the Obstructions of the Liver and Gall-bladder, and the Dropsy, by carrying off the Water through the urinary Passages.

The only officinal Preparation, is, the Trochisci Alkekengi. *Miller Bot. Off.*

The Berries have a vinous and most penetrating Juice, like Wine, or the Juice of Citrons, and are therefore commended in burning Fevers. The dried Berries ground to a Meal, and infused in Wine, is a principal Diuretic, and besides moves the Belly; and is the more beneficial, as there is nothing in our Body but Urine, that inclines to an alkaline Putrefaction; wherefore alkaline Diuretics are to be suspected. Half an Ounce of the dried Berries bruised, and taken as Tea or Coffee with Sugar, cleanses the Reins, corrects grumous Blood, helps the Yellow Jaundice, Strangury, Gout and Dropsy. The Smoke of the Seeds received into the Mouth, makes the Worms drop out of a hollow Tooth in a wonderful manner. *Boerhaave.*

Lemery adds, That it is good for the Nephritic Colic, it is commonly apply'd in Decoction, and dry sometimes, and sometimes pulverized.

Alkekengi, is an Arabian Name. *Lemery de Drogues, p. 26.*

The Species of this Plant are:

1. Alkekengi Officinarum. *Tourn.* Common Winter Cherry of the Shops.
2. Alkekengi Officinarum, foliis variegatis. *Tourn.* Common Winter Cherry, with variegated Leaves.
3. Alkekengi fructu parvo verticillato. *Tourn.* Winter Cherry with small Fruit, growing in Whorles round the Stalks.
4. Alkekengi Virginianum, fructu luteo. *Tourn.* Virginian Winter Cherry, with yellow Fruit.
5. Alkekengi Indicum majus. *Tourn.* Greater Indian Winter Cherry.
6. Alkekengi Americanum annuum ramosissimum, fructu ex luteo virefcenti. *Houtt.* American annual branching Winter Cherry, with a yellowish-green Fruit.
7. Alkekengi Americanum annuum maximum viscosum. *Houtt.* The largest annual American Winter Cherry.

8. Alkekengi

8. *Alkekengi Barbadosse patulum, parvo flore, fructu amplo, mucrone prodeuntiori.* *Aët. Phil. N.* 399. Dwarf Barbados Winter Cherries, with a small Flower, and an ample pointed Fruit.

9. *Alkekengi Curassavicum, foliis Origani incanis, flore viete sulphureo, fundo purpureo.* *Boerb. Ind. alt.* 11. 66. Hoary Winter Cherry from Curassâ, with Origan Leaves, and Sulphur-colour'd Flowers, with purple Bottoms.

10. *Alkekengi Americanum frutescens, fructu globofo rubro, vesica atro-purpurea.* *Houft.* Shrubby American Winter Cherry, with a round red Fruit, having a dark-purple Bladder. *Miller, Supplement to Gard. Dict.*

The third Species of *Alkekengi* mentioned by *Miller*, is thus distinguished:

Στρώχρον ὀκυνωτίζον. *Dioscor.*

Solanum somniferum, *Offic. Ger. Emac.* 339. *Park. Theat.* 345. *Solanum somniferum verticillatum.* *C. B. Pin.* 166. *Clab.* 522. *Hist. Oxon.* 3. 526. *Comm. Flor. Mal.* 253. *Solanum somniferum Antiquorum.* *Alp. Exot.* 71. *Solanum verticillatum.* *J. B.* 3. 610. *Raii Hist.* 1. 682. *Solanum, Alkekengi Mexicanum.* *Hern.* 296. *Alkekengi fructu parvo verticillato.* *Tourn. Inst.* 151. *Elein. Bot.* 126. *Boerb. Ind. A.* 2. 66. *Pervetti Hort. Mal.* 4. 113. *Baccifera Indica, floribus ad foliorum exortus, fructu sulcato decapireno.* *Raii Hist.* 2. 1632. SLEEPY NIGHTSHADE.

It is cultivated by the Botanists, and blossoms in July. The Root and Fruit are in Use: The Root has a somniferous Quality, but milder than Opium. The Fruit powerfully provokes Urine, and therefore is prescribed in hydropic Cases. Its Decoction easeth the Tooth-ach: The Juice of the Root with Honey, cures Dimms of Sight. *DALE* from *Dioscorides*.

The Winter Cherry is not a Native of England; but is cultivated commonly in Gardens for medicinal Uses.

Alkekengi Leaves are acrid and bitter: They give no Tincture of Red to the blue Paper; but the Fruit gives it a very deep one. It seems at first to be sourish, but afterwards very bitter; so that 'tis probable there may be in the Fruit a Salt, like the *Oxyful diaphoreticum Angeli Salæ*, mix'd with a little foetid Oil, but so involv'd in the Leaves with Sulphur and terreftrial Parts, as not to be perceptible.

The *Alkekengi* is very aperitive and diuretic: *Dioscorides* made use of it for the Jaundice, and Suppression of Urine.

The bruising or squeezing of three or four Winter Cherries in a Glass of Wine, in hydropical Cases, and Suppression of Urine, is advised by *Arnaldus de Villa Nova* and *Gesalpinius*. In Vintage-time take a sufficient Quantity of Winter Cherries and Grapes; squeeze or bruise both together to make a Must, run it up, and take four Ounces of this Wine every Morning for the Gravel. The Juice, thickened to the Consistence of an Extract, has the same Virtues. Four or five Cherries squeezed in an ordinary Emulsion, drank while in the Bath, is good for Suppression of Urine. *Brassavola* used the Juice of these Fruits in the same Disease: He affirms, That one who suffer'd exquisite Pains for three Days, was perfectly cured by it. There are Lozenges prepared of the Fruit of *Alkekengi*. *M. Lemery* has given an excellent Description of them: This Fruit is used in the Syrup of Succory, and the Anti-nephritic Syrup of the Royal Dispensatory. *Adartyn's Tincture*.

The Trochisci *Alkekengi*, Troches of Winter Cherries, is directed by the College to be prepared thus:

Take of Winter Cherries three Drams; of Gum Arabac, Tragacanth, Olibanum, Pine Nuts, Sweet Almonds, Starch, Juice of Liquorice, Armenian Bole, and White Poppy Seeds, each six Drams; of Melons, Cucumbers, Citrulls, and Gourd Seed, each three Drams and an half; of the Seeds of Smallage, and white Henbane, white Amber, Lemnian Earth, and Opium, each two Drams; and make them all together into a Paste, of a due Consistence for Troches, with a sufficient Quantity of the fresh Juice of Winter Cherries. *S. A.*

This is an old Arabian Prescription, taken originally from *Alephne*. Both the *Augustane* and first Dispensatories of the College have got it considerably different from what it is here, and in some respects also different from one another; but this is exactly as in the last Edition of the College. *Quincy's Lond. Dispensatory.*

ALKERMES. The *Confectio Alkermes* is thus directed by the College:

Take of the best scented Rose-water two Pints, of the Juice of Kermes Berries three Pints, of the whitest Sugar one Pound; boil them almost to the Consistence of Honey, and then stir in the Powders of Cinnamon, and Aloes Wood, both the best in their Kind, each six Drams, and make into a Confection. *S. A.*

" This was originally a Composition of *Alephne*, but it hath undergone many Alterations amongst Dispensatory Writers,

" and particularly those of the Faculty of *Montpelier* and *Leyden*, as may be seen in the *Pharmacopæia Regia* of *Zwelfer*; but they are all perplexed and injudicious Processes. The College at first received it into their Dispensatory, according to the original Prescription; but it hath, upon every Revise since, been altered, until reduced to the simple and easy manner as herein ordered. All the superfluous Ingredients, and troublesome Parts of the Process, are here rejected, and nothing retained but what is of some Efficacy to the main Intention, and easy to manage: The Omission of the Gold, indeed, may lessen it in the Esteem of such as attributed any cordial Virtues to it on that Score; but when they have learned to judge better, they will be more reconciled to it, as here ordered, without that Decoration." *Quincy's Lond. Dispensat.*

For the Virtues of the CONFECTION ALKERMES. See KERMES.

Many prefer the simple Juice of the *Kermes* to this Confection.

ALKIAN, is defined by the Chymists to be that Spirit which nourishes and governs a Man, by which his Food is turned into Nourishment, and Animal Generation performed, and by which Man himself subsists, or is a mixed Substance of all these together. *Theat. Chym. Tom.* 5. p. 135.

ALKIBRIC, ALCHIBRIC, ALCHIBERT, ALGIBIC, ALKIBIC, or ALCHABRIC, the same as *Sulphur vivum*. *Rulandus*. *Johnson* calls it *Alkibrie*. In the fifth Volume of the *Theatrum Chymicum*, p. 492. it is said by a certain anonymous Author, to be incombustible Sulphur.

ALKIEN. This Word is used in the *Theatrum Chymicum*, Vol. 5. p. 170. It is not easy to understand it by the Definition there given. The Author says, *Alkien Terræ est Alkien Animalis: in finibus Terræ in lamina alta sunt Vires præparatime, sicut Vires Animalis quas vocant Medici Alkien*. Probably *Alkien Terræ* is that Spirit which carries on all the Operations performed in the Earth, as *Alkien* or *Alkien Animalis* does those in Animal Bodies.

ALKIMIA. See ALCHEMIA.

ALKIN, (*Ginis clavellatus*) Pot-Ash. *Rulandus*.

ALKIR, Smoke, or Coals. *Rulandus*.

ALKITRAM, (*Pix liquida*) Tar. *Rulandus*.

ALKOEL, a very fine sort of Lead dug out of the Mines. Others affirm it to be the *Lapis Lazuli*; and others, that it is Antimony. *Rulandus*. See ALCOHOL.

ALKOL, the same as ALCOHOL, which see.

ALKOSOR, Camphire. *Rulandus*.

ALKI Plumbi, a certain sweet Preparation from Lead, perhaps *Saccharum Saturni*. *Rulandus*.

ALLA, Ale, a Liquor very well known in our own Country, the Nature of which may be comprehended from what is said under the Article ALCOHOL. As a spirituous Liquor, it must necessarily be pernicious, if taken in too large Quantities, or too frequently. It is distinguished from Beer by the Age. As Ale, properly so call'd, is not kept a sufficient Time for the remaining *Gas Sylvestre* to be destroy'd, or incorporated with the Liquor in such a manner as to lose its Elasticity, or at least a Part of it, this, as an Aliment, must be excessively windy; and we frequently find violent Colics produced by it. Some, who have drank considerable Quantities, in a short Space of Time, of very flatulent Ale, have been almost instantly kill'd by the extreme Rarefaction of this *Gas Sylvestre*, or incoercible Spirit. Others have fell into the *Cholera Morsus*, and difficultly escaped with Life.

It must, however, be allow'd, that Ale, as an acefcient Fluid, must be a very proper Drink, when calefcient Aliments are used in Quantities superior to the Powers of Digestion. Ale also is esteem'd by many to be less productive of the Stone and Gravel, than Wine, or any other Liquor, Mead excepted.

Upon the Whole, Ale well prepared, and kept to a proper Age, so as to lose its flatulent Qualities, seems to be a much safer, and perhaps more healthful Liquor, than that Wine which the Merchants and Vintners are pleas'd to supply us with, which is to such a Degree sophisticated, as to make it utterly uncertain, whether a single Glass of genuine Wine is, on any Terms, to be procur'd from their Cellars.

Lemery makes the following Remarks on Ale and Beer:

There are several Sorts of Beers, which differ from one another, according to their Consistence: For some are heavy, thick, and muddy, other clear and fine. Secondly, according to their Colour; for you will find those that are pale, yellow, and red. Thirdly, according to Taste; for some are sweet and penetrating, others bitter and sharp, and some again, almost as pungent as Mustard. Lastly, they differ also according to their Age: for new Beer hath a very different Taste from that which is stale. These various Differences proceed from the Way of brewing them, from the different Countries or Climates, from the Water that is used, from the Time spent about them, and from the Ingredients put in, and the Proportions of them.

You are to chuse that Beer which is clear, of a good Colour, of a pungent and agreeable Taste, that sparkles much when you stir it, and that is neither too old, nor too new, and without any Sourness, according to these Lines:

*Non acidum sapiat Cerevisia: sit bene clara:
Et gravis sit coëta bonis: satis ac veterata.*

Beer is of an opening, fortifying, moistening and refreshing Nature: It's nourishing enough, and makes People fat, which is manifest enough in Northern Countries, where most People drink nothing but Beer, and where they are almost all fatter, bigger, and more vigorous, than those that live in Countries, where Wine is their common Drink. See how the School of *Salernum* explains the Effects of Beer.

*Crassos humores nutrit Cerevisia, vires
Præstat, & augmentat carnem, generatque cruorem.*

Beer, when drank to Excess, makes People drunk; and the Effects of it this way, last long. When 'tis too new, 'tis windy, provokes Venery, and sometimes so operates upon the Channels, that it causes a kind of Gonorrhœa, which indeed is a little dangerous; and this, perhaps, has made some People say, that the Use of Beer, is pernicious to the Reins and Nerves; tho' Experience does by no means confirm it, but on the contrary, makes this Drink to be generally very wholesome.

They extract an inflammable Spirit from Beer, like that of Wine; they also draw Phlegm, black Oil, and a Spirit from it, which is nothing but acid Salt, dissolved in the Phlegm.

Beer agrees, at all times, with any Age and Constitution; but especially more with plump and fat People, than others.

R E M A R K S.

Beer is a Liquor well known, and which by Fermentation has been made vinous: It's made of Barley, Oats, or some other Sort of Corn, which they reduce into large Meal, of which they take a certain Quantity, put it into hot Water, wherein they boil it for some time, till the Liquor has impregnated the active Principles of the Meal; after which they draw it off, and boil it again with Hops in it, or a little Wormwood, or other bitter Plants. When the Liquor is boiled enough, they stir it much, and pour it backwards and forwards, from one Vessel into another, while 'tis yet hot: Then they let it work, in order to which they put Yeast or Dregs of Beer into it, or some other fermenting Matter. Lastly, when it has been well purged and clarified by Fermentation, they put it into Tuns or Barrels, and keep it.

The working of the Beer proceeds from the essential Salts of the Corn, which rarefy, attenuate, and exalt the oily Parts of the same Corn. This Fermentation ceases, when the Salt has surmounted the Opposition made by the oily Principles; and when the gross Matters have been precipitated into the Bottom of the Vessel: This Fermentation is still more or less full of the Principles of the Corn.

Tho' we have, in this Place, but related one Way of brewing Beer, yet 'tis done several Ways; for we may say, that every Brewer has his own Method: It's enough, that we have shewed that which is most common, and most in use.

Hops, or other bitter Plants, which they put into Beer, produce good Effects therein; they help to rarefy the gross and viscous Part of the Corn. Moreover, they hinder the Beer from growing sour; for every body knows, that bitter things are very proper to consume those that are sour.

All Sorts of Waters are not alike good for brewing of Beer with; those which are very clear, cold, and vivid, such as Well and Spring Waters, are to be preferred before others; because that, being not liable to ferment, they hinder the Beer from being spoiled. In short, if Beer does work at first with too much Violence, or else if it ferments anew, after it has once worked enough, this Fermentation will make way for the spirituous Parts to fly away; and then the acid Salts which are in the Beer, extending themselves much, and getting the Ascendency, never fail to make the Liquor turn sour.

Hence it is, that the Beer which is brewed in the Northern Countries, as in *England*, *Sweden*, *Flanders*, and several Parts of *Germany*, is better, and keeps longer, than others. In short, as the Sun has but little Power in those Parts, the Waters upon that Account are colder and rawer, and do more vigorously retain the active Principles of the Corn: And by this Reason also we may perceive, that the Beer brewed in hot Countries will not keep long, and therefore 'tis not proper to brew any in *Provence*, *Dauphiné*, or *Languedoc*.

We know by Experience, that the best Time of the Year for brewing of good Beer, is in cold Weather, as the Beginning or latter End of a Winter; and that that which is brewed in Summer, does not keep so long.

Beer may be called a liquid Bread, because 'tis made of the Meal of Corn, steeped in a deal of Water: This Drink is nourishing and moistening, by reason of the oily and balsamic

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Principles, which the Corn supplies it very largely with; it makes People intoxicated, when drank to Excess, because it contains many spirituous Parts, that cause Drunkenness in the same manner, as other vinous Liquors do, as we have already accounted for.

Beer that is too new, contains much viscous and acid Phlegm, which not having been sufficiently attenuated, during the Fermentation of it, causes Wind, and rarefies itself in the Bowels, by the Heat of the Body: It also causes Heat in the Urine, and even a kind of Gonorrhœa, by sticking in the urinary Passages, and strongly pricking them. These Accidents are remedied, by drinking a little Brandy, which separates and cuts this viscous Phlegm, and expels it from the Places where they were lodged: This is the Phlegm which contributes to make the Intoxication, caused by Beer, to be longer and more dangerous, than that done by *French* Wine, because it doth, in some measure, obstruct the Channels of the Brain, and bear down the Animal Spirits in such a manner, that it requires a pretty deal of Time, to bring them into their pristine State again.

The *English* prepare another Sort of Liquor, which they call Ale; it is yellowish, clear, and transparent, very pungent and subtil: It tickles the Nose and Mouth of those who drink it, somewhat like Mustard: It's very opening, and more pleasant to the Taste, than common Beer. They pretend, that there are no Hops, or other bitter Plants, put into it, and that its Strength proceeds from an extraordinary Fermentation caused therein, by the Help of some sharp and pungent Drugs. In the mean time, *Schookins*, in his Treatise of Beer, observes, that some put a few Hop-tops into their Ale, in order to qualify the over Sweetness of the Malt.

Mundy, a *London* Physician, speaking of Beer, says, 'That when this Liquor is new boiled, many put some Birch Boughs into it, in order to make it a little more pungent, and the sooner drinkable: He says also, That some others put Ground-ivy into the Vessels, wherein this Liquor is put, by the Help of which, the Liquor is fined in a little Time: They usually bottle up their Ale, and cork them well: But Care must be had, when you drink it, that you open the Bottle by Degrees; for the Liquor is rarefied to such a Degree, when the Bottle is suddenly opened, that it flies, and so is spilt.

Beer in *Latin*, is *Cerevisia*, à *Ceres*, because Corn, which *Ceres* was reputed the Goddess of by the Antients, is the Ingredient of which it is made: It's also for the same Reason, that some call it *Liquor Cerevis*, the Liquor of *Ceres*.

It's also called, *Vinum Hordeaceum*, *Vinum Regionum Septentrionalium*, because 'tis made of Barley, and in the Northern Countries used instead of Wine: It may be also said, that it has this Advantage of Wine, that it may be made at all times, that it moistens, is more nourishing, and marketable. *Lemery on Foods*.

ALLABOR, ALAHABAR, ALAHARI, ALCHONOR, AL-LARINCH, ALIHOHONCH, ALRACHAS, ALASTROB, ALOMBA, ALOOC, ALCAMOR, Lead. *Rulandus*.

ALLABROT, a kind of fictitious Salt. *Rulandus*.

ALLANTOIS, from ἀλλανξ, a Sausage, or Hogs Pudding, as we call it; because in Brutes it is long and thick.

It has been much disputed by Anatomists, whether the human Fœtus was furnish'd with an Allantois or not. But Dr. *Hale*, in the *Philosophical Transactions*, and Monsieur *Littre*, in the *Memoirs of the Academy of Sciences*, put the thing out of Dispute. I shall therefore give their Sentiments and Observations on this Subject.

I shall here give a true and exact Account of a human Allantois, as it appeared in two Subjects, still by me; one of which I observed several Years ago, and the other in *March* 1698-9.

Most of the Antients allow of one; not from their Experience of it, but because they took it for granted, that Men, and other Animals, were alike, in the *Viscera*, *Membranes*, *Vessels*, &c. *Hippocrates* says, 'That Twins lie in *Sinussis*, and that the Uterus has *Cornua*. *Galen* describes the *Navel-string* to consist of four Vessels, besides the *Urachus*, and the Allantois to be like a Pudding reaching from one *Cornu* of the Uterus to the other. In short, notwithstanding the Antients might sometimes dissect human Bodies, and although *Herophilus* and *Erasistratus* did open live Men and Women, yet it can't be found, what great Use was made of those Opportunities. For the Antients Accounts of many Parts, particularly of the *Urachus* and Allantois, (as to its Name, Figure, Site, &c.) agree only to their Appearance in Brutes. I shall say nothing of the Allantois in Brutes, since it is granted by most Anatomists to be in these Animals, and sufficiently described by Dr. *Needham*, who also first discovered Part of the Allantois in human Subjects; but neither he, nor any other, has taken the right Method of finding it intire; and 'tis no Wonder they could not truly describe what they never saw. Dr. *Needham* says, 'That after the *Amnios* is cleared, and left fixed to the *Umbilical Rope*, you may divide by the Fingers, or Knife, the remaining Part of the *Involucra* into two *Membranes*. The

C c c c

Exterior

Exterior he truly calls the *Chorion*, the *Interior* he takes to be the *Allantois*. But by these ways of Separation, you will presently tear the *Allantois*, and be able to discern only some small Pieces of it. Besides, the *Allantois* is at first Sight so like the *Amnios*, that many who suppose the *Amnios* double, and that its Coats are easily separable, have taken these Pieces of the *Allantois* for broken Parts of one of the Coats of the *Amnios*: Whereas having first found the Hole whence the Urine came forth, (if the *Allantois* is not too much torn) you may blow up the *Allantois* with a Pipe to its full Dimensions, and then see its true Shape, the *Fundus*, the *Cervix*, the Insertion there of the *Urachus*, its relation to the other Membranes, &c. Be the *Allantois* never so much torn, yet this way you may easily separate many Inches of it from the *Chorion* and *Amnios*: Which easy Separation demonstrates a Distinction of Membranes, since no double Membrane can be divided by the Breath alone.

Indeed *Hoboken* and *Diemerbroeck* made it a very easy thing to separate the *Allantois* from the other Membranes, only by the Fingers; but 'tis plain from their Descriptions, that they never saw one intire. Amongst other Mistakes, *Diemerbroeck* says, 'That the Urine of a *Fœtus* lies between the *Urinary Membrane*, and the *Chorion*; as though not contained in a distinct Bladder, but in a Cavity made partly from the *Chorion*, partly from the *Urinary Membrane*. I confess *De Graaf* tells us, 'That by blowing with a Pipe into a Hole made through the *Chorion*, all the Membranes of the *Secundines* will appear distinct. He has also delineated an *Allantois*, with the other Membranes, &c. as he says he found them; yet this Figure must be drawn from his own Fancy, and not from any Preparation, for these Reasons: First, Because by this way of Separation, you can only part the *Allantois* from the *Chorion*, but never see its true Dimensions, nor any Appearance of a Bladder, as the *Allantois* is, can be shew'd only by blowing into its Cavity, or by finding it full. Yet in this Figure no Sign can be observed where it was blown up, and tied, *De Graaf* also speaking of making a Hole only in the *Chorion*. Nor can this *Allantois* be supposed full of Urine, because 'tis not of the Shape of a full *Allantois*; and our Author himself calls it only the inflated Part of the *Allantois*. However, I can't conceive how the *Allantois* could remain partly filled with Air, (any more than it might with Urine) so long as till this Figure was drawn, unless some Hole was tied up, whence the Urine came forth, and the Air was blown in. Secondly, Because in this Figure the *Umbilical Rope* seems to run through both *Amnios*, and the *Allantois*, to its Insertion on the *Placenta*; whereas the *Allantois* is no-where perforated by the *Umbilical Rope*, nor does it any-where pass through the *Amnios*, but only runs under it, at the Place of its Insertion on the *Placenta*. If the *Navel-string* could be allowed to enter the *Amnios*, and to pass under it to the *Placenta*, why should it not appear (which it does not) under the *Amnios*, as well as the thin Substance of the *Allantois*? Again, according to *De Graaf's* Position of the *Secundines*, nothing could hinder a plain View of the Place where the *Navel-string* is set on the *Placenta*. This will be easily apprehended, by supposing the Part II, in my Figure, (Plate 3. Tab. 2.) to lie uppermost, the *Fundus* G and *Navel-string* being turned over; for then the *Strings* will run over the *Allantois*, as in *De Graaf's* Cut, and its Insertion appear plain on the *Placenta*, which yet can't be discover'd in his Figure. I am sure the Whole is irregular, and I take it to be fictitious. As for the *Urinary Membrane*, it seems to be the *Allantois* of a *Colt*, (where *Needham* says, 'The *Umbilical Rope* runs through the *Urinary Membrane*) not less absurdly added to the *Secundines* of a human *Fœtus*, than the *Secundines* of a *Whelp* are to a like *Fœtus*, by *Vesalius*.

Lastly, 'Tis most evident, that *De Graaf* knew nothing of the true Shape of this Membrane, and that he had never seen one intire, because he consents to *Needham's* Description of it as true, which yet is false in several Particulars. For, First, 'The *Urinary Membrane* does not cover the whole *Fœtus*, (as he assumes) but only that Part of it which respects the *Chorion*, and does not lie on the *Placenta*; for the *Allantois* can be extended at lastest but to the Edges of the *Placenta*, where the *Amnios* and *Chorion* are so closely joined by *Fibres*, that no Membrane can come between them. Wherefore, Secondly, 'The *Allantois* is not every-where fastened to the *Chorion*. And consequently, Thirdly, 'The *Allantois* can't be of the same Shape that the other Membranes are of, nor be like the *Allantois* of a *Colt*, which contains the *Fœtus* in the *Amnios*; all which, nevertheless, *Needham* asserts. In short, Dr. *Needham* had seen only Pieces of the *Urinary Membrane*, but never an intire one, and so could only guess at the Shape, &c. of it, from what he had observed in *Mares*, and *Glanduliferous Animals*. He might have made a better Guess at the Figure, Site, &c. of a human *Allantois* from that of a *Whelp*, which does not every-where encompass the *Fœtus*, as he observes. *Bidloo*, in most of his Figures of the *Secundines*, letters some *Vestigia* of the *Urinary Membrane*; but in any of these Figures you only see broken Pieces of one, so confusedly placed, than no Idea of

its Bigness, Shape, or Situation, can be formed from them. I must confess, that oftentimes the Membranes of the *Secundines* are so torn, that no Art can exhibit an intire *Allantois*; however, among the many *Secundines* that have come under the Hands of Anatomists, several, no doubt, must have been intire enough for a fuller Discovery than they have made, had it not been, by their ways of Proceeding, (*viz.* by Knife, Fingers, or blowing under the *Chorion*) impossible to discover any thing plain, or satisfactory, even in the fairest Subjects.

I come now to answer the Objections of those who still deny an *Urinary Membrane* to a human *Fœtus*.

The Difficulty of finding this *Membrane*, is by no means an Argument against the Existence of it: But a Woman that dies big with Child, is so fair a Subject for the Discovery of three Membranes, that I wonder *Parey*, having such an Opportunity, could find but two, if he was so careful as he says he was. Dr. *Tyson* observed three Membranes some Years ago, in a like Subject. After the *Chorion* was divided, and laid aside, he saw two *Bladders*, containing Liquors of different Colours, which he pressing one towards the other, did not mix, but remained distinct. This Observation fully satisfied that great Anatomist, as to the Existence of an *Allantois*; and its Figure, Texture, Site, &c. might also have been discovered by him, had not the less curious Spectators been impatient to pass on to other Parts of the Dissection.

Some deny a *Urinary Membrane* to a human *Fœtus*, because they suppose the *Urachus* to be impervious, and that therefore there would be no Passage for the Urine, and consequently no Need of an *Allantois*. *Needham* indeed says, 'That he could never find any Sign of a Cavity in the *Urachus*; yet is of Opinion, that by blowing from the *Bladder*, the Air might be forced through a *Human Urachus*, as easily as he has often done it through that of a *Whelp*. I don't understand why Dr. *Needham*, and others, should insist so much upon an apparent Cavity in the *Urachus*, or expect that Air should necessarily pass through it upon blowing, and think that otherwise it cannot be fit for the assigned Office; since many Bodies, as Membranes, &c. will not admit Air, &c. yet let Water pass freely through them. It will not seem strange, that Water should pass through the Substance of the *Urachus*, if we consider, that the Cavity of the *Urachus* to the *Navel* is open, as appears by Inflation, or Injections (to say nothing of those who are mentioned to have made Water by the *Navel*); and that the rest of the *Urachus* is pervious, tho' not plainly hollow, (the Urine rather soaking gently, than running through its more strait Tubes) may be gathered from hence: First, That the Substance of the *Urachus* (as well as the Cavity of the *Allantois*) is always found turgid with a Liquor, that in Colour, Taste, and Smell, seems urinous. Secondly, That since the *mucous Coat* of the Intestines is demonstrated to be vascular by Mr. *Leeuwenhoek*, therefore the *mucous Substance* of the *Urachus* may also be vascular. Thirdly, That Urine may as easily ouze through these *mucous Vessels*, as other Fluids run through vascular *Cartilages*, and *Bones*, &c. or the Chyle into *Lacteals*, (whose Orifices, as *Leeuwenhoek* observes, will scarce admit of Particles so big as 1,000,000,000 Part of a Grain of Sand) the great Cavity of the Intestines being open at the same Time, or as easily as grosser Parts of the *Semen* pass the Tubes of the *Testicles*, whose Cavities are not more perceptible. I am sure the Urine is more assisted in its Motion by the *Detrusor Urinæ*, &c. than any of these Fluids can be by the *Heart*, or other *Muscles*.

Others will not admit of an *Urinary Membrane*, they thinking it would be useless, because they imagine, that when the *Bladder* is full, the Urine must be discharged at its *Cervix*, and not at its *Fundus* by the *Urachus*. But in answer to this, the Urine can never pass through the *Cervix* and *Urethra*, unless the *Abdominal Muscles* contract; because we never void Urine naturally, but by the Help of these Muscles, nothing less being able to force open the *Sphincter Vescæ*. Now it being more than probable, that these Muscles never act before *Respiration*, no Urine can pass through the *Sphincter*, before the Child breathes. No Reason can be given, why the *Abdominal Muscles* of a *Fœtus* should voluntarily contract, since neither the Quantity nor Quality of the Urine can excite to such an Action: For when the *Bladder* is too full of Urine, it will ouze through the lax spongy Substance of the *Urachus*, being gently pressed by the *Detrusor* alone. There would arise many Inconveniencies from the voluntary Contraction of the *Abdominal Muscles* of a *Fœtus*, as voiding *Fæces* as well as Urine into the *Amnios*, which should be more prejudicial than Sweat, &c. Yet if we should suppose the *Abdominal Muscles* of a *Fœtus* to act, the Urine will however pass where it can most easily, that is through the *Urachus*, which is partly open, and altogether of such a Texture, as in no wise can hinder the passing of the Urine, much less be able to resist a considerable Force, as the *Sphincter Vescæ* can. Besides, the *Urachus* is not only thus qualified for the Admission of Urine, but when the Mother lies down, 'tis almost upon a Level with the *Urethra*; and what has once passed the *Urachus*, cannot return by reason

reason of the Length, Situation, and peculiar Structure of it. Lastly, The *Pudendi Clausura*, sometimes happening in both Sexes, demonstrates, that then at least the Urine cannot pass through the *Urethra*.

Dionis not finding any *Allantois*, nor an *Urachus* plainly pervious, thinks there is no Need of either, on another Account. For he supposes, that the Blood which serves for the Nutrition of the *Fœtus*, is depurated from all Excrement. But I cannot apprehend, what should make this Portion of the Blood and Chyle freer from Excrement, than the rest of the *Massa Sanguinea*. There is indeed no Portion of it, which does not contain Parts unfit for *Affimilation* and *Nutrition*. Our Author would have been convinced of this Error, had he ever opened *Abortions* of five Months old or upwards, their Bladders being always full of Urine, and some *Fœces* constantly in the Intestines. 'Tis difficult to determine when this Separation of Urine first begins; but I am apt to think it much sooner than is generally supposed. Fig. 4. Plate 3. is the *Allantois* of a very small *Abortion*, which I have still by me. Since all the Parts are perfectly formed before *Impregnation*, not very long after *Impregnation* they may begin to perform their Offices. No doubt they begin as soon as there is Occasion for any Separation; and a Separation of Urine is necessary, when the *Fœtus* is first nourished by the *Umbilical Arteries*.

The Existence of an *Allantois* is denied by some who grant an *Urachus*, but will have it convey the Urine to between the *Amnios* and *Chorion*. *Diemerbroeck's* Opinion is somewhat like this, only he would have the Urine lodged between the *Urinary Membrane* and the *Chorion*. These Men don't consider, that the Urine in this Case would get into the *Amnios*, as well as the *Succus Nutritivus* of the *Chorion*, whether imbibed from the *Uterus* by the *Chorion*, or separated by its Glands. Such a *Succus Nutritivus* of the *Chorion* is granted by the Maintainers of the forecited Opinions, as well as by those who deny an *Allantois* altogether, or suppose it to have a different Figure, &c. from what *Diemerbroeck* assigns it. The Transudation (or Filtration through the Membranes) of this *Succus* seems most likely in *Mares* and *Sows*; for in a *Mare*, the *Chorion* is not joined to the *Uterus*, till she is half gone; and in a *Sow*, it does not adhere to the *Uterus*, till near the End of her going with young: But 'tis most evident, that the Urine of a *Human Fœtus* is not contained between the *Chorion* and *Amnios*, nor between the *Chorion* and *Allantois*, from the close Connection of these Coats to one another; also from the Observation of Midwives, who often find a Bladder of Water (they call it a By-water) offering itself before the Child, whereas the Humour of the *Amnios* is little, and of the *Chorion* much less, and of another Colour, &c. at the time of Birth. This By-water is taken Notice of, as an Argument for an *Allantois* by Mr. *Cowper*, to whose Assistance we owe, that the Figures belonging to these Papers appear correct.

The great *Harvey* will not allow an *Allantois* even to Brutes, and fancies the *Allantois* and the *Chorion* to be the same Membrane, that has two Names, the first from its Shape, the other from its Office, or Number of Vessels. Yet it is plain from *Galen*, and all the Antients, that they meant two distinct Membranes by the *Allantois* and *Chorion*. Dr. *Harvey* thinks, that a *Fœtus* does not void Urine, but that the Bladder contains it till the Time of Birth. What was offered against *Dionis's* Opinion, may serve for an Answer to this also. Because 'twas impossible for this diligent Anatomist not sometimes to observe an *Urinary* Bladder, he has thought of ways to explain such *Phænomena*, without granting an *Allantois*. In Sheep and Does, he had seen as it were a certain Process between the *Umbilical Arteries* full of Urine. This Process is no doubt the *Allantois*, though *Bartholinus* calls it the *Urachus*. Again, he thinks what is called by others an *Allantois*, (if it is not the *Chorion*) is some Coat accidentally formed from a Reduplication of the Membranes; because (since every Membrane is double) Nature may, upon a Streight, lodge the Urine between a Duplication. Yet he does not tell us how his Duplication is to be filled, he allowing no *Urachus*. But in short, this *Urinary* Bladder can be no Duplication of the other Membranes, since in all Animals it differs from them, as to Figure, Texture, and in having an *Urachus*, which no other Membrane has; and since every Animal that has a Bladder, must have a like Necessity for a Receptacle of Urine till born; since also the *Urachus* is ever alike inserted in the same Species of Animals, and the *Urinary* Bladder constantly the same, as to the Shape, Texture, Situation, &c. the *Urachus* and *Allantois*, with its By-water, can be no accidental or preternatural things.

Fig. 2. Plate 3. represents the Secundines of Twins, to shew the *Allantois*, and its Relation to other Membranes, &c. after the Parts were prepared and dried.

- A A A A, Part of the *Chorion* expanded.
- B B B, a Line expressing the Edges of the *Placenta*.
- C C C, the *Amnios*, which is united to
- D, the *Allantois*, at
- E E E, the Line of Union.

F, the *Cervix* of the *Allantois*.

G, a Hole at the *Fundus* of the *Allantois*, whence the Urine came forth, and where the *Allantois* was blown up.

H, Part of that half of the *Allantois*, which lies under the Line of Union, and immediately covered the *Fœtus's*, unless it is supposed that the *Amnios* is continued under the *Allantois*.

I I, two Stiles or Probes thrust under the *Amnios*. They support the *Allantois*, and keep open the Aperture of the *Amnios*, whence the *Twins* came forth.

K, Part of the *Placenta*, with some Blood-vessels injected.

L L L L, the Arteries of the *Navel-string* filled with red Wax.

M M, the *Umbilical Veins* filled with green Wax.

N, a communicant Artery, by the means of which all the Arteries of both *Navel-strings* were filled at once, and the Veins were filled by one Injection in like manner.

O, a Pin that keeps out the *Amnios*, where, from the Edge of the *Placenta*, it runs partly to the Line of Union or Adhesion, and partly over the *Placenta*.

P, Part of the *Chorion* at the Edge of the *Placenta*, where it runs under the *Amnios* on the *Placenta*.

Q, a Pin, that by a Thread helps to pull-open the Aperture of the *Amnios*.

R R R, the *Urachus*, lying between the Arteries.

a a a, Fibres or Vessels which fasten the *Allantois* to the *Chorion*.

Fig. 3. exhibits a Side-view of the same Preparation, that the Insertion of the *Urachus*, &c. may be better seen.

N. B. That A, and all the same Letters in these three Figures, denote the same Parts in every one.

S, shews the Course of the *Urachus* R at F in pricked Lines.

T, Part of the *Amnios* raised from the *Placenta*, to discover the *Placenta* K and V.

V, that Part of the *Allantois* which is below the Line of Union, near its Neck F.

Fig. 4. shews an intire *Allantois* of a very small *Abortion*.

N. B. This *Allantois* was easily separated from the other Membranes, between which it lay; and the *Amnios* remained an intire Bladder or Membrane under the *Allantois*.

Now some Object, that which is called the Line of Union, can be no real Thing: As to this, I don't know whether the *Allantois* of *Twins* may not require such a Conjunction to sustain, and keep steady, a greater Quantity of Urine; nor can I resolve, whether the *Allantois* of *Twins* (like that of a single *Fœtus* in Fig. 4.) may not be distinct, and separable from the *Amnios*, but was not discovered by me to be so, thro' want of Skill or Care. However, the Reasons why such a Line was figur'd, are these:

1. Although I used more Force, with equal Care, to separate the *Allantois* in this Place, than in any other, (where nevertheless the Separation was very easy) yet I could not divide these Membranes farther than that Line.

2. This Line seeming so regular, as to divide the *Allantois* into two equal Parts, I could not take it to be the Effect of Chance, or my Separation.

3. The Part H below the Line E E, was alike in Transparency to that Part of the *Allantois* D above it; whereas had the *Amnios* been joined to the *Allantois*, (as the Objectors suppose) the *Allantois* below this Line must have appeared thicker than that Part above it, since the *Amnios* alone is much thicker than the *Allantois*. 'Tis easy, indeed, to conceive the *Amnios* running an intire Bladder, or Membrane, under the *Allantois*, and perhaps it may be so; but I think it disingenuous to conceal what I did observe, or to make out by Fancy, what I could not discover in Fact.

Others have thought this *Allantois* to be an *Amnios* of one of the *Twins* belonging to these Secundines. This Objection, though it may seem plausible, yet it is of no Force. For, first, this *Allantois* is much finer to the Touch, as also much more transparent, than the other *Amnios*, which still remains stiff, whilst the much thinner *Allantois* sinks under the least Blast of Air, notwithstanding the Stiles I I, which assist it. Secondly, This *Allantois* had two visible *Urachus's*, and is of an Oviform Figure, somewhat like the common Cuts of a Man's Bladder (for a true Cut of a human Bladder I never yet saw, for it ought to be made much bigger (as it really is) at its *Cervix*, &c.); also this *Allantois* no-where touches the *Placenta*, unless at the Neck F; but on the contrary, the *Amnios* is of the same irregular Figure, as the Position, Motion, &c. of the *Fœtus* require; likewise it covers the whole internal Surface of the *Placenta*. Thirdly, They who make this Objection must suppose some Hole in this Bladder, and in the *Amnios*, through which one *Umbilical* Rope may pass from the *Placenta* to the *Fœtus*; but such a *Foramen* would be preternatural, because the *Navel-string* only runs from the *Placenta* to the *Fœtus*, under a Coat taken from the *Amnios*, and lies with the *Fœtus* in the Cavity of the *Amnios*, that is no-where perforated. Fourthly, The Hole at the *Fundus* G was scarcely wide enough to receive the End of a Man's Finger, whereas the *Twins*

Twins did not want six Weeks of their full Time. Since therefore a *Fœtus* of near eight Months could not possibly pass this Orifice, this Bladder could not be an *Amnios*.

Nothing in these *Secundines* is preternatural, only some things were not before observed. Hitherto Anatomists have not allowed Twins to lie in a common *Amnios*, but supposed each *Fœtus* to have a distinct *Amnios*. The Reason of this Opinion might be, that some, denying any Urinary Membrane, called every Membrane they found (except the *Chorion*) an *Amnios*; and these, finding two Membranes in the *Secundines* of Twins, supposed them to be two *Amnios*'s: That others, granting an *Allantois*, but not distinctly discovering it, but only two Membranes, also imagined them to be two *Amnios*'s; both of these taking that for the *Amnios*, which might really be an *Allantois*. But since one *Chorion*, and one *Placenta*, (the *Placenta* and *Chorion* being ever of the same Number) generally serve Twins, (nay, sometimes three *Fœtus*'s) why should it seem strange, that one *Amnios*, (at least sometimes) and one *Allantois*, should serve the like Number?

I am not ignorant, that *Mauriceau*, and *Diemerbroeck*, think there is an absolute Necessity for every *Fœtus* to lie in a distinct *Amnios*, and that otherwise Twins in the same Membrane would grow together, and make a Monster. *Aquapendens* farther says, That all *Ova Gemellifica* do produce some other sort of Monster; yet 'tis most certain, that *Ova Gemellifica* do exclude two perfect Children, however not both alive. The great *Harvey*, indeed, thinks it possible, that such an *Ovum* may produce a monstrous Child, if its *Vitelli* are contained in the same Membrane, &c. yet does not positively say it must be so. For my Part, I cannot see any more Reason, why Twins in one *Amnios* should grow together, than that the Hands or Heels of the same *Fœtus* should grow to its own Body. How can the Humours that lubricate a single *Fœtus*, and help it to move, join two together? Since the Humours are the same, and the Parts of the same *Fœtus* as tender as those of Twins are, and lie as close to one another, as Twins do. 'Tis very observable, that among all Monsters we read of, there are very few which seem to be made of two intire Bodies joined together, and that most of these, upon Dissection, were found to have but one Heart, one Liver; whence 'tis most plain, that these Monsters (and no doubt all others) were originally Monsters in the *Ova* before Impregnation, and not so from want of the *Amnios*. Yet *Diemerbroeck* does not a little boast of having first (as he thinks) found the Reason why Twins must lie in distinct *Amnios*'s: But since the Matter of Fact (sometimes at least, as in these *Secundines*, there was only one *Amnios*, and two regular *Fœtus*'s) is not true, his Argument for a Necessity of two *Amnios*'s for two *Fœtus*'s will never prove valid, even where Twins, and two *Amnios*'s, are found. Indeed any Part may be made to grow to any Part, as we see in the Cure of Hair-lips, &c. but then the Fibres must be first broke, before there can be any Union. Now I cannot conceive what should naturally break the Fibres of the Twins in the *Uterus*. But although 'tis evident, from what has been said, that Twins may be distinct in the same *Amnios*, yet there must be as many *Urachus*'s as *Fœtus*'s. In these *Secundines* I saw two running over the *Placenta*, to the Neck of the *Allantois*, which I communicated to some Physicians, before the Parts began to grow dry. The *Urachus* passes under the *Amnios*, as the other *Umbilical Vessels* do, and runs from that Part where the *Umbilical Rope* is set on to the *Placenta*, strait to the *Cervix F.* S describes the Course of that *Urachus* marked R, at F in the second Figure. The other *Urachus* lay about a quarter of an Inch laterally beyond that marked R in the same Figure. I mean by two *Urachus*'s, two long roundish Bodies, of a depressed Figure; they seemed as big as a Knitting-needle, and were of a darker Substance than the *Placenta*, on which they lay; they appear'd, in every respect, like that Part of the Navel-string which is allowed by all Anatomists to be the *Urachus*, and in like manner shrunk in two or three Days from a mucous Substance to a mere Membrane: These two are the only intire Urinary Membranes that I have prepared. Yet in the *Secundines* that have come to my Hands, I have ever found three distinct Membranes easily separable. *Phil. Trans. abr. Vol. 4. p. 87 to 96.*

M. *Littre*, in his Observations on a monstrous Human *Fœtus* (*Mem. de l'Acad. Roy. des Sci. 1701. p. 115.*) says, That he found in the After-birth of that *Fœtus*, besides the *Chorion* and *Amnios*, a third Membrane, of the same Make as the two others, and not like a Gut, but exactly what we find in some Animals, and call *Allantoides*. This Membrane he intirely, with his Finger, and blowing, separated from the *Amnios*, and from the *Chorion*, as far as where this adheres to the *Placenta*, and even partly in that Place, but with a little more Difficulty. This third Membrane was a little thinner than the *Amnios*, but as thick as the *Chorion*; he could perceive no Blood-vessel in it, nor any Liquor between that and the *Chorion*; but betwixt it and the *Amnios*, there was half an Ounce of yellowish mucilaginous Liquor, which, he says, was probably the most glewy Part of the Urine, which, by reason of its Viscidity, could not run off with the rest at the

Rupture of the Membranes in the Birth. And perhaps it is this Matter that remaining between the two Membranes, after the thin Part is run off, glues them together, and causes them to be taken for one. Since this, he says, he found the same Membrane in several human *Fœtus*'s perfectly well form'd, by taking hold of it in the same manner as he did in the monstrous *Fœtus*.

The Use of this third Membrane of the After-birth of the Human *Fœtus* is, probably, the same as that of the *Allantoides* in Animals where it is found, which is, that the Urine which cannot be contained in the Receptacles of the Kidneys, in the Ureters, nor in the Bladder, might pass from the Bladder, by the *Urachus*, to the Cavity formed by the *Amnios*, and this particular Membrane, to be there kept in Reserve till the time of Delivery. *Mem. de l'Acad. Roy. des Sci. 1701. p. 115.*

ALLELUJA, a Name for *Acetosa*, Wood-forrel. See ACETOSA.

ALLIAR ÆRIS, a Term used by Alchymists in their Processes for preparing the Philosopher's Stone, to signify the *Æs Philosophicum*, Philosophical Copper: It is also called *Aqua Mercurii*, Water of Mercury; *Æs Album*, White Copper; *Animal Kenkel*, *Lapis & Ovum*, the Stone and the Egg; and by innumerable other Names, as appears from *Gulielmus Teckenstis*, in the second Chapter of his *Lilium de Spinis Evulf. Theat. Chym. Tom. iv. p. 889.*

ALLIARIA, a Plant thus distinguished:

Alliaria, Offic. Ger. 650. Emac. 794. Raii Hist. 1. 792. Park. Theat. 112. J. B. 2. 883. C. B. Pin. 110. Mer. Pin. 4. Merc. Bot. 1. 17. Phyt. Brit. 4. *Alliaria Matthioli*, Rupp. Flor. Jen. 61. *Alliaria*, *Alliaris*, Chab. 281. *Hesperis Allium redolens*, Hist. Oxon. 2. 252. Raii Synop. 3. 293. Tourn. Inst. 222. Elem. Bot. 190. Boerh. Ind. A. 2. 17. Dill. Cat. Giff. 51. *Hesperis separia allium redolens*, Buxb. 155. JACK BY THE HEDGE. SAUCE ALL ALONE. Dale.

ALLIARIA. This Plant has a small woody whitish Root, perishing every Year after giving ripe Seed; the Stalks grow to be about two Foot high, slender and striated, and a little hairy; the Leaves stand on long Foot-stalks; the lowermost are roundish, hollowed in next the Foot-stalk; those which grow on the Stalk are somewhat pointed, and waved about the Edges, thin and tender; being rubbed, they smell strong of Onions or Garlic; the Flowers grow on the Tops of the Stalks, small and white, of four Leaves a-piece, and are succeeded by long slender Pods, including small long Seeds: It grows in Hedges and Bank-sides, and flowers in May.

The Leaves are used; being hot, and of thin Parts, they provoke Urine, and are good for the Dropsy; the Juice mixed with Honey helps old Coughs; they resist Poison, and pestilential Distempers; outwardly they are used with good Success in Gangrenes. *Miller's Bot. Off.*

It contains a great deal of Essential Salt and Oil.

It is incisive, attenuating, and deterfive; good for the venomous Bites of Serpents, for the Dysentery, to strengthen the Stomach, and to abate Hysterical Vapours: It is used in Decoction. *Lenery de Drogue.*

It is esteemed an excellent Antiscorbutic, eaten by way of Salad.

ALLIGATURA, is used by *Scribonius Largus* for Ligatura, a Bandage. *Scribon. Larg. Cap. 77. N. 209.* See LIGATURA.

ALLIOTICUM, (from *ἀλλίω*, to alter or vary) A Galenical Medicine, which alters and purifies the Blood; consisting chiefly of the Roots of Dandelion, Succory, Fennel, and Raisins; with the Herbs Endive, Common Ox-eye, Lettice, Sorrel, Fumitory, &c. *Blancard.*

ALLIUM, Garlick, a Plant well known.

There is in *Agypt* a mild Sort of Garlick, which is cultivated in Gardens, and grows after the manner of Leeks, with a single Head; this is sweet, small, and of a purplish Colour: But in other Places it is white, and has a Head composed of a Multiplicity of Cloves, called (in *Greek*) *ἀγλίθαι*, *Aglithai*. There is also a wild Kind, called *ὀφιοσκορδον*, *Ophioscordon*. (Vipers Garlick.)

Garlick is of an acrid, heating, biting Nature; expels Wind, disturbs the Belly, dries the Stomach, excites Thirst, and causes Inflations; will raise Blisters on the Skin, and dull the Sight. The *Ophioscordon*, called also *ελαφίσκορδον*, *Elaphoscordon*, (Stags Garlick) being eaten has the same Effects. Garlick, taken in Food, expels the flat Worms, and provokes Urine; and there is nothing better for the Bite of the Viper, or the Hæmorrhoids, than to eat Garlick after a Glass of Wine, or to drink it bruised in the Wine. Applied outwardly as a Cataplasin, it is good for the aforesaid Purposes, and also for the Bite of a mad Dog. Taken as Food, it prevents Injuries from Change of Waters, clears the Voice (*ἀρτείας λαμπρότητα*); and eaten raw or boiled, mitigates an inveterate Cough. Drank with a Decoction of Origanum, it destroys Lice and their Nits. Burnt and mixed with Honey, and the Parts anointed therewith, it cures Lividness about the Eyes occasion'd by Blows, and the Alopecia; but for this last Affliction, there must be an Addition of Ointment of Nard. Mix'd with Salt and Oil,

it cures the Eruption of Papulæ; and with Honey it heals the Vitiligo (ἀλωπεξ), the Lichenes, and Lentigines (φακς), and Lepra. Boiled with Pine, Resin and Frankincense, and held in the Mouth, it assuages the Tooth-ach; with Fig-leaves and Cumin, it makes a Cataplasin for the Bite of the Shrew-mouse. A Decoction of the Tops, added as an Ingredient in Inseffions, brings down the Menfes and Secundines. A Suffumigation thereof has the same Effect. Pounded into a Mass with the (Leaves of the) black Olive, which Composition they call *Myrtotan*, it provokes Urine, opens the urinary Passages, and is good for Hydropical Persons. *Dioscorides, Lib. 2. Cap. 182.*

Garlick is recommended by *Celsus* to be eaten before the Access of the Fit of the Ague, in order to take off the Shiverings. *Celsus, Lib. 3. Cap. 12.*

Garlick is mentioned, among Cicatricers of Ulcers; by *Oribasius* from *Zopyrus*. [*Med. Coll. Lib. 14. Cap. 58.*] And it heats and dries so powerfully as to expel Leeches without any other Help. *Orib. de Virt. Simp. Lib. 2. sub Scordon.*

It has something medicinal, and of bad Juice in it, which is lost in boiling. The constant Use of it is to be avoided, especially in hot Constitutions; for Eatables of such an acrimonious Quality are only fit for Persons troubled with pituitous, crude, gross, or glutinous Humours. *Ætius Tetr. 1. Serm. 1. Orib. Med. Col. Lib. 2. Cap. 27.*

The Garlick Drawing Plaister for all Hardnesses, Abscesses, Boils, Strumæ, Tumours in the Groins, Fistulas, humid Tethers, and hardened Breasts.

Take of Wax two Pounds, of Colophony and Stags Marrow each an Ounce and half, of white Nitre eight Ounces, twenty Cloves of Garlick, and four Pounds of Oil. Boil the Cloves first, peeled, in the Oil, till they are quite dry; then strain the Oil, and put thereto the liquefiable Ingredients, and afterward the Nitre pounded, and so use it.

My Method of Preparation is as follows:

Take of Wax, Colophony, Oil, each five Ounces, Nitre an Ounce and half, Stag's Marrow two Ounces, with thirty Cloves of Garlick; prepare them as before for a Plaister, to be used especially for Fistulas; for it draws out the Humour, which must be often wiped away. This alone, without any other Help, draws, incarnates, and heals or cicatrizes. *Ætius Tetr. 4. Serm. 3. Cap. 44.*

Garlick, Onions, and Leeks, are remarkable for their Acrimony, on which account they heat and attenuate the Body, and cut gross, thick Humours. After two Boilings they yield a little Nutriment, but raw none at all. Garlick is the most discutient and aperitive. The *Ampeloprasium* is drier than the Leek, as growing wild. *Ægineta, Lib. 1. Cap. 76.*

Two or three Drams of Garlick, reduced to a very fine Powder, and drank in Wine, is a good Phlegmagogue. *Actuarii Meth. Med. Lib. 5. Cap. 8.*

There are several Sorts of Garlick; the first is the

1. *Allium* Offic. Ger. 141. Emac. 177. Park. Theat. 513. Raii Hist. 2. 1125. *Allium sativum*. C. B. Pin. 73. Hist. Oxon. 2. 387. Buxb. 15. Tourn. Inst. 383. Elem. Bot. 304. Boerh. Ind. A. 2. 147. Rupp. Flor. Jen. 122. *Allium vulgare* & *sativum*. J. B. 2. 554. GARLICK. Dale.

The Root consists of several Cloves, or small Bulbs, of a reddish white Colour, set together in a round Compass, and inclosed in one common skinny Coat or Cover, having several small Fibres at the Bottom; the Leaves are broad and long, like those of Leeks; on the Top of the Stalk, which grows two or three Foot high, stands an Umbel of small white five-leaved Flowers; the whole Plant, especially the Root, is of a very strong and offensive Smell.

Garlick is called the Countryman's Treacle, though it is not used nigh so much in England as it is in foreign Parts. It is accounted a Strengtheners of the Stomach and Bowels, an Expeller of Wind, and very good for the Colic; in Asthmas and Difficulty of breathing, it is a very good Medicine, the Root being either preserved with Sugar, or a strong Decoction of it made into a Syrup. *Miller Bot. Offi.*

It grows in Gardens, and flowers in June. The Root is used, being of a heating, drying, incisive, aperient and discutifive Quality, and an Alexipharmac. Its principal Uses, internal and external, are in the flatulent Colic, Worms, Pestilence, Cough, Stone, Itch, Obstruction of Urine, Dropsy, &c. Dale.

Taken internally, it is thought to preserve from the Influence of an infected Air. It is used also externally; for, being bruised, it is applied to the Wrists in a cold Fit, or Beginning of an Intermitting Fever. It also is good to take away Corns of the Feet, being bruised and laid upon them.

Rocamboles, which they call Shalotes of Spain, are the Fruit of the Garlick, which is cultivated in Spain. *Lemery de Drogues.*

It provokes Urine, it kills Worms, makes the Voice good and agreeable.

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It causes Pains in the Head, heats too much, and makes the Humours too sharp, and over-agitates them: It is also pernicious for those that have the Piles, and for Nurses. *Lemery on Foods.* Hoffman informs us, that Garlick is an effectual Remedy for that Dysentery which Sailors contract in East-India Voyages, from the Use of putrified Flesh.

Boiled in Milk, it is a popular Remedy for the Worms.

The second Sort of Garlick is the,

2. *Ophioscorodon*, Offic. Ger. Emac. 181. *Scorodoprassum alterum bulboso & convoluto capite*, Park. Theat. 872. Raii Hist. 2. 1120. *Allium sativum alterum, sive Allioprassum caulibus summo circumvoluto*. C. B. Pin. 73. Hist. Oxon. 2. 387. Tourn. Inst. 383. Elem. Bot. 304. Boerh. Ind. A. 2. 145. Rapp. Flor. Jen. 122. *Allii genus Ophioscorodon*, Chab. 201. *Allii genus, Ophioscorodon, dictum quibusdam*. J. B. 2. 559. VIPERS GARLICK, ROCAMBOLE. Dale.

It is planted in Gardens, and flowers in July. The Root and Kernel are in Use, and it agrees in Virtues with the former, but is of a milder Nature. Dale.

The *Ophioscorodon*, which is a wild Garlick, is stronger than the Garden Sort. *Paulus Ægineta, Lib. 7. Cap. 2.*

A third Sort of Garlick is the,

3. *Scorodoprassum*, Offic. Chab. 201. Park. Theat. 872. *Scorodoprassum primum Clusii*, Ger. Emac. 180. *Scorodoprassum dictum*, J. B. 2. 558. *Allium sphaerico capite, folio latiore, sive Scorodoprassum alterum*, C. B. Pin. 74. Tourn. Inst. 389. Boerh. Ind. A. 2. 145. *Allium maximum multis porraceis foliis latioribus, sphaerico capite ex floribus albis conflato*, Hist. Oxon. 2. 387. *Allium montanum majus Anglicum Newtoni*, Raii Hist. 2. 1125. *Allium Holmense sphaerico capite*, Raii Synop. 3. 570. WILD LEEKS. Dale.

The *Scorodoprassum* grows to the Bigness of a Leek, and partakes of the Qualities of Leeks and Garlick; and by a Mixture of their Virtues serves for the same Purposes with either of them, though with less Efficacy. The *Scorodoprassum*, boiled after the Manner of Leeks, grows mild and sweet, and eatable like other Greens. *Dioscorides, Lib. 2. Cap. 183.*

This Species of Garlick grows plentifully in *Holmes-Island*.

A fourth Species of Garlick is the,

4. *Ampeloprasium*, Offic. Matth. 552. Comp. 299. Lugd. 1543. Cam. Epit. 323. *Allium montanum bicornis, an Ampeloprasium*, Raii Cot. Angl. 2. 127. *Allium montanum bicornis purpureum proliferum*, Raii Synop. 3. 169. Tourn. Inst. 384. *Porrum sylvestre vinearum*, C. B. Pin. 72. Tourn. Inst. 382. Elem. Bot. 303. Garr. 376. FRENCH LACK. Dale.

It grows on Hills, in Meadows, and in the Gardens of the Botanists, and flowers in June. The Root is used, and is good against the Bites of Serpents, according to *Dioscorides*.

It has been much doubted, of late, by very good Writers, what Plant is meant by Botanists under the Name of *Ampeloprasium*; one fixing here, another there. They have been led into this Uncertainty by *Dioscorides*, in his omitting to give a Description of the *Ampeloprasium*. There are four kinds of Herbs in *Baubine*, which have had this Name from some or other of the Botanists, out of which I have chosen the foregoing, as having the most Vouchers. Dale.

The *Ampeloprasum* is not so agreeable to the Stomach as the Leek, but is more healing, and more powerfully provokes Urine; it also brings down the Catamenia; and, being eaten, is good for the Bites of venomous Creatures. *Dioscorides, Lib. 2. Cap. 180.*

The *Ampeloprasium* differs from the Leek, just as the Wild, in all other Kinds, differs from the cultivated of the same Kind. *Oribas. Med. Col. Lib. 2. Cap. 27.*

The *Ampeloprasium* is drier than the Leek, as being wild; it is hot and acrimonious in a very high Degree, and therefore hurtful. It is of an incisive and decollient Quality, but ungrateful to the Stomach. *P. Æginet. Lib. 1. Cap. 76. & Lib. 7. Cap. 3.*

Another Species of Garlick is the

Victoralis, Offic. Schrod. L. 4. P. 173. *Allium Alpinum*, J. B. 2. 566. Raii Hist. 2. 1122. *Allium Alpinum, Victoralis mas quibusdam*, Chab. 203. *Allium latifolium montanum maculatum*, C. B. Pin. 74. Hist. Oxon. 2. 388. Tourn. Hist. 388. Elem. Bot. 304. Boerh. Ind. A. 2. 145. *Allium Alpinum latifolium, seu Victoralis*. BROAD-LEAVED MOUNTAIN GARLICK. Ger. Emac. 182. Ger. 142. *Allium agninum*, Park. Theat. 872. *Moly Alpinum latifolium maculatum*, Rupp. Flor. Jen. 122. SPOTTED RAMSONS. Dale.

It may be met with in the Gardens of the Curious, where it flowers in June.

The Root is used, being of a heating and drying Quality like wild Garlick, with which it agrees in all its Properties. It is commonly worn as an Amulet by the vulgar Sort of our People, as well as the Jews, who are persuaded that it renders them secure against infectious Air, and Apparitions. Dale (from Schrader).

Miller mentions a Sort of Garlick under the Name of *Allium bulbiferum Virginianum*, Boerh. Ind. Ali. Virginian Garlick.

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Besides the above-mentioned, there are some others, which go by the Name of Allium, as the

Allium sylvestre, Offic. Ger. Emac. 179. Park. Theat. 870. Raii Hist. 2. 1117. Synop. 3. 369. Mer. Pin. 4. *Allium sylvestre tenuifolium*, Völcck. Flor. Nor. 17. Merc. Bot. 1. 17. Phyt. Brit. 4. *Allium campestre juncifolium capitatum purpurascens majus*, C. B. Pin. 74. Dill. Cat. Giff. 112. *Cepa juncifolia minor purpurascens*, Tourn. Inst. 383. *Cepa sylvestris tenuifolia, prolifera & florifera* Rand. Boerh. Ind. A. 2. 144. CROW GARLICK.

The Medicinal Virtues of this, are represented to be the same as those of common Garlick.

Moly, Offic. *Dioscorideum*, Ger. 143. Emac. 183. Park. Parad. 145. *Moly Dioscoridis parvum quibusdam*, J. B. 2. 568. Raii Hist. 2. 1123. *Moly Dioscoridis parvum quibusdam, flore candido*, Chab. 204. *Moly angustifolium umbellatum*, C. B. Pin. 75. Boerh. Ind. A. 2. 146. *Moly angustifolium umbellatum album*, Hist. Oxon. 2. 393. *Allium angustifolium umbellatum album*, Tourn. Inst. 385. MOLY OF DIOSCORIDES.

Dioscorides recommends this, made into a Pessary, with Oil of Orris, (or Meal of Orris, for the Copies differ) in Relaxations of the Uterus.

Moly Theophrasti, Offic. *Moly Theophrasti magnum*, J. B. 2. 568. Raii Hist. 2. 1122. *Moly Theophrasti magnum, floribus albis stellatis*, Chab. 204. *Moly Homericum*, Ger. 144. Emac. 183. *Moly Homericum, vel potius Theophrasti*, Park. Parad. 141. *Moly latifolium liliflorum*, C. B. Pin. 75. Boerh. Ind. A. 2. 146. *Moly latifolium flore albo*, Rupp. Flor. Jen. 122. *Allium latifolium liliflorum*, Tourn. Inst. 384. *Ornithogalum Indicum latifolium floriferum sphaericum, colore colosino aut albo*, Hist. Oxon. 2. 380. MOLY OF THEOPHRASTUS.

The Virtues of this are said to be the same as those of the *Moly of Dioscorides*.

ALLIUM GALLICUM, is a Name in *Marcellus Empiricus* for Portulaca; and also, in the same Author, for Inula Rustica, or Comfrey Root; perhaps the last is, by Mistake, for Alus Gallica, one of the Names of Comfrey in *Gerard*.

ALLOBROGICUM VINUM. An austere Sort of Wine, of the Growth of Savoy and Dauphiné, recommended by *Celsus* in a Resolution of the Stomach. *Lib. 4. Cap. 6.*

ALLOCHOOS, ἀλλοχόος. A Person who talks wandering, or deliriously; in which Sense it is used by *Hippocrates* in his second Book of Epidemics: Οἱ πολλοὶ μᾶλλον καὶ δύσπνοοι, καὶ διαλεσμένοι εἰσι ἀλλοχοί. "Such were much more troubled with Difficulty of Breathing, and wandering in their Discourse." But it must not be omitted, that for ἀλλοχόος in this Place, *Galen* reads παλοχόος, which signifies those who spit much; and that *Erotian* seems to approve this Reading.

ALLOCHROEO, ἀλλοχρόω, to change the Colour of the Skin, to appear first of one Hue, and then of another. And thus it is applied by *Hippocrates*, in his Treatise de Intern. Affect. Ἰσθαι ἐν ἡ χολῇ ὑπὸ πρὸ δέρματι, καὶ ἐν τῇ κεφαλῇ, ὥς ὥθως ἀλλοχρόει τὸ σῶμα. "The Bile therefore stagnating under the Skin, and in the Head, immediately changes the Colour of the Body."

ALLOCO'TON, ἀλλοκότον. *Hippocrates* makes use of this to signify what the *Latins* express by *alienus*, absurd, or improper, or unusual. Thus in his Treatise of the Diseases of Women, he says, they are perpetually desiring absurd or unnatural Food (ἀλλοκότων βρωμάτων).

ALLODEMIA, ἀλλοδημία. This Word is used by *Hippocrates* to express travelling into another Country. Thus in his Treatise de Internis Affectionibus, speaking of a Fever, attended with an odd kind of Delirium, he says, it most frequently happens in ἀλλοδημία, (in peregrinatione) in travelling, or on a Journey into another Country.

ALLOEOSIS, ἀλλοίωσις, & ALLOKOTICOS, ἀλλοιωτικός (Alteratio). An Alteration induced in the Body by a proper Regimen, and proper Medicines, changing it from a morbid Condition towards a State of Health.

ALLOGNOON, ἀλλογνόων, from ἄλλος, (another) and γινώ (to know). It imports being delirious: That is, according to the Derivation, knowing, or conceiving Things different from what they are in Reality.

ALLOPHASIS, ἀλλόφασις, from ἄλλος, (another) and φάω (to speak). It signifies a Delirium: That is, speaking of Things differently from what they really are. Hence ἀλλοφασσόντες is frequently used by *Hippocrates*, to express delirious, or light-headed.

ALMA, or rather HALMA, ἄλμα. A Word which *Hesychius* interprets πῖσμα, and says it signifies τὴν πρώτην τῆ μητρὸς μεταβάσιν ἐν κινήσει. "The first Motion made by a Foetus in the Womb towards freeing itself from its Confinement." It also signifies Water. *Rulandus*.

ALMABRI, (Lapis Ambrae similis) a Stone resembling Amber. *Rulandus*.

ALMAGER, the same with SINOPIS, or RUBRICA SINOPICA, which see. It is a red polar Earth.

ALMAGRA, the Bolum Cuprum, Laton, the Stone itself, or the Terra rubea, the Red Earth. Or, ALMAGRA is the same as LOTUM, LOTIO. *Rulandus*. It is also a Name for the Sulphur album, White Sulphur of the Alchymists. *Theat. Chym. Tom. 4. P. 729.*

ALMAKANDA, ALMAKIST, ALMARIAB, ALMARCAR, ALMARCAR, (Lithargyrium) Litharge. *Rulandus*.

ALMARCARIDA, (Lithargyrium Argyritis) Litharge of Silver. *Rulandus*.

ALMARCAT, the Scoria of Gold. *Rulandus*.

ALMARGEN, ARMALGOL, ALMARAGO, Coral. *Rulandus*.

ALMARKASITA, Mercury. *Rulandus*.

ALMARTACK, (Litharginus cinis) Powder of Litharge. *Rulandus*.

ALMATATICA, (Metallum cupri) Copper. *Rulandus*.

ALMECASIDE, ALMECHASIDE, Copper. *Rulandus*.

ALMELILETU, a Word used by *Avicenna*, to express a preternatural Heat less intense than that of a Fever, and which may sometimes continue with Persons after their Recovery from that Distemper. *Castellus*.

ALMENE, Sal Lucidum, or Sal Gemmæ. *Rulandus*.

ALMETAT, (Scoria Auri) Scoria of Gold. *Rulandus*.

ALMISA, Musk. *Johnson*.

ALMISADIR, ALMISADAR, ALMIZADAR, AMIZADIR, ASANON, AMISADU. (Sal Armoniacus præpuratus) Sal Ammoniac prepared. *Rulandus* and *Johnson*.

ALMISARUB, Earth. *Johnson*.

ALMIZADIR, (viride Aëris) Verdigrise. *Rulandus*.

ALMYRINTHRA, a Word used by *Myrepsus*. It is supposed, by his Commentator, to signify the same as the Arabic Word ALMYRA, which is Quick-Lime.

ALNEC, Allenec, or Alcalap. *Tin. Rulandus*.

ALNUS, a Plant thus distinguished:

Alnus Offic. Ger. 1294. Emac. 1477. Jonf. Dendr. 334. Raii Hist. 2. 1409. Synop. 3. 442. Chab. 60. Mer. Pin. 4. *Alnus vulgaris*, Park. Theat. 1408. J. B. 1. 151. Merc. Rot. 1. 17. Phyt. Brit. 4. Dill. Cat. Giff. 55. *Alnus rotundifolia glutinosa viridis*, C. B. Pin. 428. Tourn. Inst. 587. Elem. Bot. 460. Boerh. Ind. A. 2. 181. Rupp. Flor. Gen. 265. Buxb. 16. The ALDER TREE. *Dale*.

Its Leaves resemble those of the Hazel. The Male Flowers (or Catkins) are produced at remote Distances from the Fruit on the same Tree. The Fruit is squamose, and of a round Figure. *Miller*.

It delights in watry Places. The Bark and Leaves are in Use: The Bark is drying and astringent. The green Leaves, apply'd, discuss Tumours, and allay Inflammations: Taken internally, they are Vulneraries: Put in the Shoes of Travellers, they mitigate Pain and Lassitude. *Buxb.* Scatter'd in Chambers, while they are green, and the Dew upon them, and soon after gathered up, they rid the Rooms of the Fleas, which are apt to stick to them. *Trag.* The Bark dyes a black Colour, and may be used instead of Galls to make Ink. It is beneficially apply'd in Inflammations. *Dale*.

It contains a great deal of Oil, and but little Salt, and that almost all fixed.

Its Leaves are resolute, being bruised and apply'd upon Tumours; it serves for a Decoction to wash Travellers Feet with after being tired; and, rubb'd upon the Posts of the Bed, it kills Fleas. The Bark and its Fruit are cooling, and proper for Inflammations of the Throat, being used as a Gargarism. *Lemery de Drogues*.

Lobel represents this Plant in the Figure of the *Alnus altera Clusii*, which is very different: *Tragus*, *Gesner*, *C. Bauhine* upon *Matthiolum*, *Dodonæus*, and *Stapel*, confound its Catkins with the Fruits. *J. Bauhine* distinguishes them very well: This Author supposes the little Threads at the End of the young Fruit, to be the Flowers of the Alder; but this is no more than a Dispute about the Name. I believe we had better take the Catkins for the Flowers. All these Parts are correctly engraved in the *Elements de Botanique*: The Dyers and Hatters make a beautiful Black with the Infusion of Iron and the Bark of the Alder: The *Hist. Lugd.* relates, That a Tincture is made of Vitriol and an Infusion of the Fruit of this Tree: Thus it is probable, the Bark and Fruits may contain the same Principles as the Galls; viz. a great deal of Acid and Earth. *Tragus* and *Dodonæus* made use of its Leaves as a Cataplasm, to soften and resolve Tumours. Alder Leaves are used in the Alps in Paralytic Cases, especially when the Disease has proceeded from an external Cause, as lying in the Fields or damp Houses. Thus some Sack-fulls of the Leaves, either dried in the Sun or an Oven, are spread forth, upon which the Patient lies, being sufficiently covered with the same, and other warm Cloaths, till he has sweated plentifully. This Remedy is good for the Rheumatism, Sciatica, and such-like Diseases: Those that have the Pox receive no Benefit by it. *Martin's Tournefort*.

There are two other Species of this Tree in England, according to *Miller*, viz.

Alnus

Alnus folio oblongo viridi, C. B. The long-leav'd Alder.

Alnus vulgaris sub conis ligulis membranaceis rubris donata. The scarlet Alder.

This last Sort was found in a Meadow near *Langleet*; but is a matter of Doubt, whether it is a distinct Species, or some accidental Variety. *Miller*.

Another Tree, which is also called *Alnus*, is the

Frangula, alnus nigra, Offic. *Frangula*, Volck. Flor. Nor. 173. Tourn. Inst. 612. Elem. Bot. 486. Boerh. Ind. A. 2. 231. Dill. Cat. Giff. 66. Rupp. Flor. Jen. 34. Buxb. 116. *Frangula, sive Alnus nigra baccifera*, Park. Theat. 240. Raii Synop. 3. 465. *Alnus nigra, sive Frangula*, Ger. 1286. Emac. 1470. Mer. Pin. 4. *Alnus nigra baccifera*, J. B. 1. 506. C. B. Pin. 428. Raii Hist. 2. 1604. Chab. 45. Merc. Bot. 17. Phyt. Brit. 4. *Alnus baccifera nigra vulgaris*, Jons. Dendr. 436. THE BLACK ALDER-TREE. *Dale*.

This Tree never grows to any great Bigness, but shoots out into many small Branches, covered with a reddish brown Bark; it bears broad roundish, but sharp-pointed Leaves, about the Bigness of the Leaves of the Pear-tree, smooth, and full of Veins. The Flowers grow on the younger Branches, on the lower Part next the Trunk, several together, at the setting on of the Leaves, being small and white; and are succeeded by small round Berries, about as big as *Juniper* Berries, green at first, then red, and when ripe, blackish, full of a greenish Juice, of a bitter Taste, and having two flat Seeds in every Berry. The black Alder grows in moist thick Woods, as in *Hornsey* and *Hampstead* Woods, and flowers in *May*; the Fruit is ripe in *September*.

The inner Bark of this Tree (which is of a yellow Colour, and tinges the Spittle like Rhubarb) purges serous and bilious Humours pretty smartly, and is commended for the Dropsy and Jaundice; but it ought to be corrected with proper Aromatics, or else it will cause cruel Gripping and Vomiting: Beaten in a Mortar, and mix'd with Vinegar, it is accounted very good for the Itch, the Parts being washed with the expressed Liquor. It is rarely used. *Miller Bot. Off.*

The Species of this Alder, according to *Miller*, are

Frangula rugosiore & ampliore folio. Tourn. Berry-bearing Alder, with a larger and rougher Leaf.

Frangula montana pumila saxatilis, folio subrotundo. Tourn. Low Mountain rocky Berry-bearing Alder, with a round Leaf.

Frangula montana pumila saxatilis, folio oblongo. Tourn. Low Mountain rocky Berry-bearing Alder, with an oblong Leaf.

Frangula semper-virens, folio rigido subrotundo. Hort. Eltham. Ever-green Berry-bearing Alder, with a round stiff Leaf, commonly called the *Hottentot Cherry*.

ALOE, a Plant thus named.

The Aloe is like a Squill, only bigger, and with fatter Leaves obliquely striated. It has a tender Stalk, red in the Middle, and not unlike the Anthericos. The best comes from *India*, but it grows also in *Asia*, tho' the Leaves only of this latter are used for unglutinating of Wounds, for which it is excellent, even the Juice of it; and for that Reason is planted in Pots like the greater Houseleek. Some cut the Stalk, before the Seed is ripe, for the sake of the Juice; others cut the Leaves for the same Purpose. Sometimes the Juice is found sticking to the Plant like a Tear; on which account it is usual to make a Pavement round it, that the Tear might not be absorbed in the Earth. We are told that in *Judea*, above *Jerusalem*, it is of a metalline Nature; but this is the worst Sort of all, as being the blackest and moistest. [This last Circumstance *Salmasius* treats as fabulous.]

Aloe is of an inspissating, condensing, and gently warming Quality. It is useful for many Intentions, but principally for purging, since it is almost the only thing of that Nature, which is so far from being hurtful to the Stomach in any respect, that it strengthens it. The Dose is a Dram; but in a Resolution of the Stomach 'tis usual to give the Measure of a Cochleare (about a Dram) in one sixth of a Pint of warm or cold Water, two or three times a Day, at proper Intervals, as Occasion shall require. The highest purging Dose is three Drams; and it works the better for making a Meal after taking it. *Pliny* finishes what he has to say of it, in ascribing the same Virtues to it, as you have in *Dioscorides*. *Plin. Lib. 27. Cap. 4.*

The Aloe has a thick fat Leaf, like the Squill, of a pretty wide Circumference, and convex on the Outside. On both Sides of the Leaves are here and there some blunt Prickles, which stand obliquely, and seem broken. It sends up a Stalk like the Anthericos, [the Stalk of this *Asphodel*, according to *Pliny*] which bears a Flower and Seed like the *Asphodel*. The whole Plant has a strong Scent, and a very bitter Taste. It has but one Root, which runs downward into the Earth, like a Stake.

It grows very plentifully, and extraordinary fat and rich, in *India*, whence the Juice is exported. It grows also in *Arabia*, *Asia*, and in some maritime Places and Islands, as in *Andros*: This indeed does not yield its Juice freely and copiously, but

is excellent for conglutinating of Wounds, if bruised, and applied to the same.

There are two Kinds of this Juice; one sandy, which seems to be the Dregs or Dross of the purest Sort; the other resembles the Liver. Chuse the fat, and unadulterated, which is void of Gravel, shining, yellowish, friable, resembling the Liver, easily moistened, and of an intense Bitterness; but reject the Black, and hard to break. Some adulterate it with Gum-Arabic, which may be discover'd by the Taste, and its coming short of the Bitterness and strong Smell of the true; and also in that it will not crumble to Dust between the Fingers. Some will mix Acacia with it.

As to its Virtues, it is an Astringent, procures Sleep, dries, condenses, loosens the Belly, and cleanses the Stomach. The Dose is two Cochlearia in cold Water, or Water heated Milk-warm. It stops spitting or vomiting of Blood, and purges off the Yellow Jaundice, if taken to the Quantity of half a Dram or a Dram in Water. Swallowed with Resin, or drank in Water or clarify'd Honey, it loosens the Belly. The Weight of three Drams is a complete Purge. Mixed with other Cathartics, it renders them less incommodious to the Stomach. The dry Powder sprinkled [*επιπαδιν*, according to the Scholiast, for *επιπαδιν*] on Wounds, conglutinates them, and heals and cicatrizes Ulcers. It has a peculiar Virtue in Exulcerations of the *Pudenda*, and heals the torn Prepuces of Boys. Mix'd in sweet Wine, it cures the Condyloma, and Fissures of the Arms. It stops the Flux of Blood from the Hemorrhoids, cicatrizes Pterygia, and takes off the livid Marks of Bruises and Blows in the Face, being mixed with Honey. It mollifies the Roughness of sore Eyes, and the Itching of the Canthi. Mixed with Vinegar and Oil of Roses, and the Forehead and Temples anointed therewith, it mitigates the Pain of the Head; and mixed with Wine, puts a Stop to the Shedding of the Hairs. With Wine and Honey, it is good for the Diseases of the Tonfils, Gums, and the other Parts belonging to the Mouth. When used in a Collyrium, it is roasted in a clean white earthen Saucer, and stirr'd with a Spoon, till it be equally and thoroughly done. It is usual to wash Aloes, by which the sandy Part sinks to the Bottom, and is set aside as useless; and the rest, which is of a very fat and smooth Substance, is reserved for Use. *Dioscorides, Lib. 3. Cap. 25.*

Aloes is no violent Purger; is very friendly to the Stomach, like Wormwood. Two Drams in Hydromel are a Dose; it purges Bile and Phlegm. It may be taken every Day after Supper; for it passes off the Stomach, without disturbing the Concoction of the Food, and causes no Thirst, but excites an Appetite. Bruise your Aloes, and with the Juice of Cabbage make it into Pills, of the Size of a Chick-pea or Bean, of which you may take two or three at a time, as Necessity shall require. You may also make it into Pills with Resin, or clarify'd Honey, especially for those who cannot well endure its Bitterness. It is proper also to be mixed with Scammony, or any other Cathartic, which is subject to lower the Spirits.

It is good for Quotidian Agues, Yellow Jaundice, Pains in the Liver, Nausea, and Crudities. It is as proper for Women as Men, and would be a very fit Purge for Children, were it not for its Excess in Bitterness, which Children cannot endure. *Orib. Med. Coll. Lib. 7. Cap. 27. Ruffus Ephesus, Fragment. de Med. Purg.*

Aloes is excellent for Ulcers, that are difficult to be cicatrized, especially those in the *Pudenda*, and about the Anus. *Orib. Synop. Lib. 7. Cap. 11.*

Aloes does not purge the whole Body, but is a fine gentle Cleanser of the Stomach, Belly, and Intestines, from Bile and Excrements. For this Reason, it is prescribed to such as have their Heads affected with continual Vapours from the Stomach, as it carries off the Seeds, and destroys the Original, of the Disorder. On the same Account it is proper for such as are troubled with sore Eyes, or are subject to a Dryness of the Mouth and Tongue, from a redundant Bile, or are afflicted with the Heart-burn, Nausea, or any weakening Disorder. It is also given to such as are unaccountably pale, and want Evacuation, when a Clyster, for some Reasons, cannot properly be administer'd. The Dose is two Drams in Hydromel. It may be taken every Day, either in the Morning fasting, or after Supper. Pound the Aloes, and make it up into Pills of the Size of a Chick-pea, with the Juice of the Rind of Citron, or, for want of that, with the Juice of Cabbage; it may also be done with Turpentine, or clarify'd Honey. The Pills ought to be swallowed in Hydromel, or a Draught of the same should be taken immediately after. Purging Medicines attract, like a Cupping-glass, the Causes and Seeds of Distempers, that infect the principal Parts, and evacuate them by the Belly. *Aetius Tetr. 1. Serm. 3. Cap. 24. Aetuar. Meth. Med. Lib. 5. Cap. 8.*

To purge Bile, give a Dram of Aloes in the Morning. They who prescribe it in the Evening, or after a Meal, do hurt; for it corrupts the Aliment. In a less Dose, as half a Dram, it only evacuates the Belly of the Excrements. Of all Cathartics, Aloes only is grateful to the Stomach. For such as cannot

cannot endure its Bitterness, it is prepar'd in Pills. *Aegineta*, Lib. 7. Cap. 4.

Medicines are generally hurtful to the Stomach; and for this Reason, all Cathartics ought to have a Mixture of Aloes. *Celsus* Lib. 2. Cap. 12. P. 32. E.

The *Arabians* call Aloes in their Language *Sabr*, and say, that the *Sabr Al Sacotheri*, that is, the Aloes of *Zocatra*, excels what they call *Schegeri* and *Hadramuthi*, or the Aloes that grows in the Countries of *Scheger* and *Hadramuth*. *Herbelot* Bibl. Orient. Art. *Sacothorab*.

Edrissi says, That the Aloes of *Zocatra* excels all others; and that *Alexander* the Great, being informed by *Aristotle*, of the Virtues of this Plant, transported the Inhabitants of the Island to *Arabia* and *Ethiopia*, and settled a Colony of *Greeks* in their Room, whom he charged with the Cultivation of the Aloe.

The Inhabitants gather the Leaves in *July*, and boil them in great Kettles to get out the Juice, which, after boiling, remains at the Bottom; this they take out, and expose it in other Vessels to the Heat of the Sun, during the Dog-days. *Herbelot* Bibl. Orient. Art. *Sabr*.

The Plants from which the Aloes, commonly used in Medicine, are produc'd, are

1. *Aloe Offic.* J. B. 3. 696. Chab. 541. *Aloe*, C. B. Pin. 286. Rai Hist. 2. 1195. 1 fl. Oxon. 2. 414. Tourn. Infl. 366. Elem. Bot. 294. Boeth. Ind. A. 2. 128. Hort. Beaum. 6. Herm. Hort. Lugd. Bat. 16. *Aloe Dioscoridis*, Colum. Ecph. 1. 40. *Aloe Dioscoridis & aliorum*, Sloan. Cat. Jam. 15. Hist. 1. 245. *Aloe vera vulgaris*, Munt. Alcod. 17. *Aloe vulgaris, sive semperverum marimum*, Ger. Emac. 507. Park. Theat. 149. *Caraguata Brasiliensis*, Marcg. 57. *Caraguata tertia*, Pison. Ed. 1658. 193. *Kadanaku vel Catevalu*, Hort. Mal. 11. 7. Tab. 3. COMMON ALOES.

It grows in both *Indies*. The Leaves are the useful Part of the Plant; and the inspissated Juice of the *Barbados Aloe*, is called the *Official Aloes*. This is sometimes of a shining Black, sometimes nearly of a Liver-colour, of a strong Smell, and extremely bitter. It is brought to us from *Barbados* in large Gourds. The Leaves are commended against Burns. The inspissated Juice has the same Virtues as the *Succotrine Aloes*. *Dale*.

2. *Aloe Guineensis Caballina vulgari similis, sed tota maculata*, Commel. Præsul. Bot. 40. HORSE-ALOES.

The inspissated Juice is used; the impure, blackish, drossy Part of which is called *Aloe Caballina*; the purer Part, which is of a Liver-colour, is the *Aloe Hepatica*.

The above-named Author calls this Species *Caballina*, because the Leaves, when broken, shed a Juice like the Horse Aloes. *Dale*.

3. *Aloe Succotrina*, Offic. *Aloe Succotrina angustifolia spinosa, flore purpureo*, Breyn. Prod. 2. 12. Hort. Amst. 1. 91. Commel. Præsul. Bot. 40. *Aloe Indica Orientalis serrata, sive Succotrina vera, floribus phœniceis*, Hort. Beaum. 5. *Aloe Americana serrata, floribus coccineis*, Parad. Bat. Prod. 306. An *Aloe Americana Anonæ foliis, floribus juave rubentibus, ex codice Bentingiano*, P. P. Tab. 240. Fig. 4. SUCCOTRINE ALOES.

It differs from the *Horse Aloes* only in Purity, as some think. It has not only a purging, but a heating and drying Quality. It opens Obstructions, clears the Passages, provokes the Hemorrhoids and Menfes, strengthens the Stomach, kills and expels Worms, and purges bilious and phlegmatic Humours.

The Root of the common *Aloes* is pretty thick, running deep into the Ground, not much divided, but with several Fibres about it. It has many long, narrow, thick, fat and juicy Leaves, roundish on the Outside, and hollow on the In; the outer Leaves inclosing the inward; they are prickly about the Edges, and sharp-pointed, of a whitish green Colour; from among these the Stalk arises two or three Foot high, divided towards the Top into several Branches, on which grow many Bottle-like Flowers, of one single pretty large Leaf, divided at the End into five Segments, of a yellowish white Colour; each Flower being followed by a cylindrical Seed-vessel, divided into three Parts, and containing flat Seed. It grows in *Spain*, *Italy*, and the *West-Indies*. Of this Plant is made the *Aloes Hepatica* of the Shops, or the *Barbados Aloes*, which is brought over to us in Gourds, of a Liver-colour, and a very nauseous Scent. It is made by gently pressing the Leaves pluck'd from the Roots, stroking them downwards; by which the bitter Juice, which is contain'd in particular Veins, drops into Vessels set under; and having stood all Night, the thin Liquor is pour'd off, and the Sediment is dry'd and harden'd in the Sun, which is our *Aloes*.

The *Aloe Succotrina* is made the same way, but from another Species of this Plant; viz. *Aloe Succotrina spinosa angustifolia, flore purpureo*, Breyn. Prodrum. 2. *Aloe vera minor*, Munting Alcedar. This is a lesser Plant, fuller of Leaves, more neatly made, bearing red Flowers, in Form and Shape

like the other, but less. The *Aloes* made of this Species comes over from the *East-Indies* in Skins; the best being made in the Island of *Succotra*. It is blacker, more shining and brittle, and when powder'd, of a fine yellow Colour, not apt to clot together after it is powder'd, and of but little Smell, in Comparison to the other.

Aloes is a purging Medicine much in Use, and chiefly beneficial to cold moist Constitutions; it is not much given by itself, unless now-and-then to Children for the Worms; but is a main Ingredient in most of the official Pills, as also in the Species *Hieræ Picræ*; it is accounted a good Stomachic, and useful to carry off tough and slimy Humours from the Bowels, and good to mix with Steel to promote the menstrual Flux. Outwardly, it is serviceable in fresh Wounds, a little of the fine Powder being put in them; it is also mix'd with other Ingredients, and laid to Childrens Navels against the Worms.

Official Preparations from *Aloes*, are, *Aloes Rosata*, *Pilula de Aloe lota* and *Aleophanginae*. *Miller Bot. Off.*

Miller enumerates thirty-seven different Sorts of Aloes.

The *Succotrine Aloes* grows in *Zocatra*, an Island in the Straights of *Babel Mandel*, where they formerly prepared the Aloes by expressing the Leaves, and then letting the expressed Juice stand in a quiet Place, till an oily Substance rose at the Top. This Substance they took off, and evaporated it to the Consistence of an Extract.

The *Succotrine* and *Hepatic Aloes* are both very good Purgers, but they rarefy the Blood, and therefore cause Hæmorrhages, and other undesign'd Evacuations, to those who are subject to them. This Medicine ought therefore never to be given to Women with Child, or to those who are subject to Piles, &c. Again, Aloes, after its purgative Effect is over, is constipating; and therefore to such Persons as are inclined to be costive, Cassia is preferable. The Dose is from four Grains to half a Dram. The resinous Part, extracted by Spirit of Wine, will purge violently; and the gummy Part, extracted by Water, is a good Vulnerary, especially in Ulcers of the Bladder and Kidneys. The Tincture of Myrrh and Aloes is used to prevent Mortification in Wounds. *Grossfroy*.

The Aloes does not belong to the Class of drastic Purgatives, it has Strength enough to be sufficiently cathartic, and uses to excite vehement Commotions in the Mass of Blood; so that a few Grains are enough for a Dose. But if it be dissolved in Water, Rain-water, for Instance, and boiled a considerable time, its cathartic Virtue is weakened, so that it has no Effect at all, except the Dose be augmented. *Hoffman Obs. Physico-Chy. Lib. 2.*

Laxative Preparations of Aloes, both the *Hepatic* and *Succotrine*, are Remedies of great Efficacy, provided the Aloes, by proper Methods, be freed from its foreign volatile and sulphureous Principle, and stript of the Resin which closely adheres to the Coats of the Intestines. These Preparations must be administered in small Doses, and mix'd with bitter Extracts, and mild balsamic Ingredients. For this Reason the Pills which were perhaps casually found out by *Becherus*, and which, according to his Method, ought to be prepar'd of the best Aloes, cannot be too highly commended, because they gently open the Belly, and restore the Tone of the Intestines, when weakened by any Distemper, to such a Degree, that other Purgatives would be prejudicial to them. And tho' these Pills produce no considerable Effects upon robust Constitutions, and People of plethoric Habits, yet their Virtues are very considerable, and exert themselves very speedily in Constitutions naturally weak, or such as have been extenuated by Sickness, and in Women who are either in Child-bed, or who, thro' some Fault of the Womb, have their menstrual Discharges in an irregular manner. They are likewise proper for correcting and evacuating crude Humours, when the Digestion of those who are recovering of a Fit of Sickness happens to be bad; they are also beneficial to those who labour under hypochondriacal Disorders, whose Stomachs perpetually throw up acid Crudities. Preparations of Aloes, on the other hand, administered without a proper Corrector, or in large Doses, put the Blood into a quick Motion; for which Reason, plethoric Persons, such as are easily wrought upon, or such as are subject to Discharges of Blood, ought altogether to abstain from Aloes, because all aloetic Preparations have this peculiar Disadvantage attending them, that they excite very painful Hæmorrhoids, and drive the Blood towards the Region of the Loins, and Parts contain'd in the Pelvis. But besides the Pills of *Becherus*, there are others not to be defrauded of their Worth, nor banished from Use, in which Aloes is made up with other proper Ingredients, such as the *Pilule Tartaræ* of *Schroder*, the *Aleophanginae*, the *Maracossinae*, *Pilule de Succino Cratonis*, and those of *Sohnander*. *Hoffman. Medic. Rational. Systemat. Tom. 3. Sect. 2. Cap. 5.*

The Author might have added the *Pil. Ruffi*, and some others in our Dispensatory.

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M. *Boulduc*, in his *Treatise of Purgatives*, considers Aloes in particular. It ought to be pure, transparent, bitter, and of a strong Scent. It is reckon'd among the moderate Purgatives.

By M. *Boulduc's* Analysis by Extraction, it appears, that the *Succotrine* Aloes contains scarce half the Quantity of Resin, or sulphurous Matter, and about a third more of a saline Substance, than the *Hepatic*. As for the Horse-Aloes, it is so impure, and contains so much Earth in Proportion to its Sulphur and Salts, that it deserves not to be regarded.

The different Proportion of the Principles of the *Succotrine* and *Hepatic* Aloes, might well be the Cause of their different Properties. As the resinous Part of Aloes, contrary to other Cathartics charg'd with Resin, is little or nothing Purgative; the *Succotrine*, which has the least of that Resin, has been always preferr'd to the *Hepatic* for inward Uses; and, on the contrary, the *Hepatic*, which has more of it, excels as much the other, on account of its external Usefulness, for cleansing of Wounds, and closing the Lips of recent Cuts, &c. M. *Boulduc* equals it, in that respect, to the natural Balsams. 'Tis plain enough, that these Effects are the natural Result of the resinous and balsamic Parts.

The Salts of Aloes are very active, and corrode the Extremities of the Veins, where the Fibres are finest, whence proceed Hæmorrhages. Therefore it highly concerns us, that the saline Part, which wants to be restrain'd by the resinous, be not separated from it; and yet this is the Case in several Preparations of Aloes, when they have not been made by skilful Hands. They have rejected the resinous Part, as too gross, and good for nothing, because it kept at the Bottom of the Solution. M. *Boulduc* assures us, that he has been several times a Witness to the fatal Effects of a free Use of *Elixir Proprietatis*, and all Preparations of Aloes, which have either been ill made, or taken to Excess.

M. *Boulduc* is so far from approving a Separation of the resinous from the saline Part of Aloes, that, on the contrary, he would have them more strictly united by the Mediation of an Alkali, such as the Salt of Tartar. We are not only to assist Nature under Disorders by Remedies, but lend her our helping Hand in the Remedies themselves. *Hist. de l'Acad. Roy. des Sciences*, 1708.

ALOES ROSATA, Rosated Aloes.

Take of bright *Succotrine* Aloes in Powder, four Ounces; of the depurated Juice of Damask Roses, one Pint; and digest them together over a gentle Heat, till the superfluous Humidity is exhaled, and the Remainder is of a due Consistence for Pills, *S. A.*

This is ordered, in the *Augustane* Dispensatory, to be done three times over; and in the *Pharmacopæia Regia*, it is directed with an Addition of Diagyrdium, and Resin of Scammony; but that is now rejected. The same Dispensatory also orders another, with Infusion of Violets; but this is the most simple of them all, and the only one, that is now used in Practice.

PILULÆ DE ALOE LOTA, Pills of washed Aloes.

Take of Aloes, dissolved in the Juice of Roses, and again inspissated, one Ounce; of the Troches of Agaric, three Drams; of Mastich, two Drams; Syrup of Damask Roses, a sufficient Quantity; to make into a Mass for Pills, *S. A.*

This is, in the *Augustane* Dispensatory, under the Title of *Pilulæ de Aloe lotâ incerti Authoris*, with the Addition of half a Dram of the Species *Diamoschu dulcis*. It hath stood also in the same manner in the College Dispensatories down to the present, which hath also rejected that Species out of the Number of that Class. *Zwelfer* finds Fault with the Title, because Aloes cannot properly be said in this Process, nor indeed in any other, to be washed; and directs the Aloes Rosata to be used in its stead. There are many other Compositions in this Form with Aloes, in the *Augustane*, and other Dispensatories, as particularly one with Mastich, from *Nicolaus Myrepsus*; but they are quite rejected from amongst the present Officials. *Quincy's London Dispensatory*.

ALOEDARIA, cathartic compound Medicines, so called from Aloes, a principal Ingredient.

Aloedaria of *Philagrius*, gently purging with Honey of Roses.

Take of Aloes six Ounces; of Costus, Spikenard, Carpo-balsamum, Flowers of Juncus odoratus, each one Ounce; of Cassia, one Ounce; of Agaric, four Drams; of Saffron, four Drams; the Tops of Centaury, four Scruples; of Honey, two Ounces; Juice of Roses, four Ounces; Epithymum, one Ounce; of Rheum, eight Scruples; of Asarabacca, four Scruples; of Xylobalsamum, six Scruples.

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ples; of Mastich, eight Scruples. Make them into an Electuary with Honey of Roses, and let the Dose be according to the Strength of the Patient.

Another of the same, gently purging without any manner of Trouble, and good for Pains in the Joints and Loins, but especially for the Sciatica, and opening Obstructions of the Liver.

Take of Ilium, (supposed to be the black *Chameleon*) eight Scruples; of Agaric, four Drams; of Aloes, two Ounces; of Spikenard, eight Scruples; of Flowers of Juncus Odoratus, eight Scruples; of Saffron, four Scruples; of Cassia, sixteen Scruples; of Costus, eight Scruples; of Carpo-balsamum, eight Scruples; of Honey of Roses, three Ounces and eight Scruples. Bruise them, and make them into Pills with the Honey of Roses, of which give five after Supper, every Day, or every other Day, as you please. It is a Detergent of the Stomach and Joints, and chiefly purges Phlegm. You may dine and sup during the taking of them as usual.

Another, that purges both Phlegm and Bile.

Take of the Tops of Wormwood bruised and strained, and of Aloes very finely powdered, each one Ounce; and with the Juice of Spurge, especially the Myrtle-Spurge, make into Pills of the Bigness of a Kidney-bean, of which give three at a time.

Aloedarium from *Philagrius*, purging Bile and Phlegm.

Take of the Medulla, or inner Substance, of the Colocynthis, Aloes, Scammony, each five Drams; Juice of Tops of Wormwood, five Drams; with the Juice of Cabbage make them into Pills, of the Bigness of a Chick-pea, and give one-and-twenty at a time to adult Persons.

Another, approved by long Experience, which purges three Humours.

Take of Aloes, Epithymum, Scammony, each two Drams; of Colocynthis, Agaric, each one Dram; make them into Pills with the Juice of Cabbage, and give fifteen at a time.

Another, made in the City of Tyre.

Take of Scammony, two Ounces; of Aloes, one Dram; of Mastich, Bdellium, Pepper, Wormwood, each one Dram; make them into Pills with the Juice of Citrons, and the Rind of the same, and give seven or nine at a time. If you would have them work smartly, give the Weight of four Scruples and a half, or more.

The Aloedarium of *Oribasius*.

This is chiefly design'd for sore Eyes, and principally purges black and yellow Bile.

Take of Scammony, one Ounce; Rind of black Hellebore, one Ounce; Sal Ammoniac, one Dram; Root of All-heal, three Drams; Pepper, Penyroyal, each one Dram; make them up with Water into Pills like a Grecian Bean, and give seven of them at a time, so as they weigh nearly one Dram and a Scruple.

Another of *Oribasius*.

Take of Aloes two Ounces, of Spikenard, Asarabacca, Mastich, Saffron, Xylobalsamum, each six Drams; of Cassia, twelve Drams; of Epithymum, twelve Drams; make them into Pills of the Size of a Vetch, with a Decoction of Penyroyal, and give twenty-one for a Dose. This cures Quartan Agues. They may also be made up with boiled Honey. *Ætius Tetrabib.* 1. Serm. 3. C. 105. &c.

ALOFEL, according to *Rulandus*, or ALOFEL, according to *Johnson*, a Cloth made use of to cover a Vessel.

ALOGOS, αλογος, is an Adverb, used frequently when any thing is said to happen without sufficient Reason or Cause: Thus when a Fever disappears without any critical Evacuation, *Hippocrates* says it is resolv'd αλογος, without sufficient Reason, and in this Case is subject to a Relapse.

ALOGOTROPHIA, αλογотροφια, from αλογος, disproportionate, and τροφω, to nourish. Unequal or disproportion'd Nourishment, as when, for Example, in the Rickets, one Part receives a greater Degree of Nourishment than another.

ALOHAR, ΑΛΟΗΟC, ΑΛΟΙΟΗΟC, or ΑΛΟΗΟΤ. Quick-silver. *Rulandus*.

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ALOIDES,

ALOIDES. *Aloe palustris*, Offic. Mont. 36. *Alaides*, Boerh. Ind. A. 2. 132. *Aloe palustris*, C. B. Pin. 386. Johr. Hod. Bot. Pl. Ign. *Aloe five Aizoon palustre*, J. B. 3. 787. Chab. 567. *Militaris aizoides*, Ger. 677. Emac. 825. Raii Hist. 2. 1324. Merc. Bot. 2. 26. Phyt. Brit. 75. Mer. Pin. 77. *Stratiotes, five militaris Aizoides*, Park. Theat. 1249. Hist. Oxon. 3. 618. *Stratiotes foliis Aloes, semine longo*, Gundelsh. ap. Johr. Raii Synop. 3. 290. *Stratiotes aquaticus Belgicus*, Bod. in Theoph. 436. WATER ALOES, or, FRESH WATER SOLDIER. Dale.

It has Leaves like the Aloe, but shorter and smaller, and surrounded with short stiff Prickles, with Pods between them, like Crabs-claws, which opening, produce white three-leav'd Flowers, very much resembling those of Frog-bit (*Morfus Ranæ*, Dale) and bearing small yellow Chives. Its Roots consist of long, round, white Fibres, very like long Earth-worms, or the bigger Harp-strings, which from a short Head, when the Plant puts forth Leaves, shoot down towards the Bottom of the Water, but seldom reach it. Besides these, it has other Fibres, which run obliquely, and propagate it after the manner of Frog-bit.

It grows in slow Streams, and Lakes of Standing-waters, and is often found in large Ditches by Marshes, with most of its Leaves and Flowers above Water, the rest of the Plant being hid under it.

This Herb, in the Isle of *Ely*, flowers in *June* and *July*, and sometimes in *August*.

The Fibres, with which it is furnish'd instead of Roots, are shewn by knavish Mountebanks to old Women for Worms, in a Vial full of Water, to make them look the bigger, the Cheats pretending they have brought them away from their Patients, by Virtue of their Medicines. Raii Hist. Plant.

The Herb is used, being accounted among the Vulneraries. Dale.

ALOPECES, (Lat. *Vulpes*) Muscles of the Loins, the only ones of the Back, which grows to the Loins, otherwise called *Ψαι*, Psoai, and by some *νευρομήτρες*, (read, also *νευρομήτρες*, for which some substitute *νευρομήτρες*) *Ruffus Ephesus*, Lib. 1. Cap. 30.

ALOPECIA. A Distemper attended with Baldness, all or most of the Hair falling off. It is deriv'd from *ἀλωπεξ*, a Fox, because this Animal is said to be very subject to a Distemper which resembles it.

The Antients, amongst whom the Disorder seems to have been more common than it is amongst us, have been pretty long in their Accounts of this Disease: But as *Sennertus* has collected from them all, I shall content myself with inserting his Abridgment, after having given the Sentiments of *Celsus*.

There are two Kinds of Areas, in both which it is common for the outer Skin to grow dead, and the Hairs first to wither, and then fall off; and if the Part be wounded, a thin Blood issues out, of a fetid Smell. Both Areas in some are of a quicker, in others, of slower Growth; the worst is, what condenses and pinguifies the Skin, and renders it quite bare and smooth.

That called *ἀλωπεκία*, *Alopecia*, spreads itself under any Figure, and affects the Beard as well as the Head; the other, which, from its resembling a Serpent, is called *οφίασις*, *Ophiasis*, begins from the Back-part of the Head, and creeps about the Breadth of two Fingers, 'till it has extended its two Heads to both the Ears, and sometimes to the Forehead, 'till both Heads meet in one. The Alopecia comes at any Age, the Ophiasis seldom but to Infants; the first is very rarely taken off without Medicine, the other often goes off of itself.

Some exasperate these Kinds of Areas by scraping them with a Knife, others anoint them with Catheretics mix'd with Oil, especially burnt Paper, dipt in Oil. Others again spread over the Place Resin of Turpentine with Thapsia (deadly Carrot). But there is no better way than to shave the Part every Day with a Razor; for in cutting away by little and little the outer Skin, the Roots of the Hairs are opened; nor must we desist 'till we see the Skin set thick with budding Hairs. It is proper to rub over the Place thus often shaved with Vitriol. *Celsus*, Lib. 6. Cap. 4.

Of the ALOPECIA and OPHIASIS.

There is a peculiar Sort of Falling-off of the Hair, called *Ἀλωπεκία* "Alopecia," and *Οφίασις* "Ophiasis." It has the Name of *Alopecia*, because such a Defluxion of Hairs often happens to Foxes; and it is termed *Ophiasis* from the Figure of the smooth and bald Parts, which wind about in the manner of a Serpent. In both these Affections it is common for the Hair to fall off by Handfuls at a time, so as to leave whole Spots quite bare; whence the Disease has also the general Name of *Area*, [a bare Plot of Ground] and *Celsus* treats of Areas, Alopecia, and Ophiasis, in the same Chapter. It took the Name of *Area* from the Areas you see in Gardens in the Country; for as these are Plots disposed here and there, and are bare and naked, as having nothing growing on them, so does the Skin, in this Affection, at certain Places, appear smooth and bald.

However these Affections differ at least in Figure; for the Alopecia has no determinate Form, but, as *Celsus* says, extends itself under all Shapes; but the Ophiasis creeps winding like a Serpent, sometimes from the Back-part of the Head on both Sides, as far as the Ears, and of the Breadth of almost two Fingers; sometimes it passes by the Ears, and extends itself, creeping like a Serpent, to the very Forehead. Besides, in the Ophiasis there seems to be more Malignity in the Cause, since not only the Roots of the Hairs, but the Cuticle itself, is corroded as far as these Roots reach. From what has been said, the Alopecia and Ophiasis may be defined, a Defluxion of the Hairs of the Head, which lays whole Places bare at a time, and owes its Rise to a depriv'd and corrupted Humour, that corrodes the Roots of the Hairs.

The Author of the Treatise, *De Medicamentis facile parabilibus*, reckons Alopecia and Ophiasis among the Affections which change the Colour of the Hair. But we ought to take Notice, that this Alteration is not a Property of that Defluxion of the Hair, which occasions Areas; but the Change of Colour in the Hair either precedes the Alopecia and Ophiasis, as when the Hairs from a vitiated Nutriment first turn white, and afterwards fall off; or this Alteration happens after the Alopecia and Ophiasis. For when the Hairs spring afresh upon these Areas, or bare Spots, they appear white or yellow, as white Hairs use to grow upon the healed Spot of an Ulcer in the galled Back of a Horse, which owe their Colour to a vitious Nutrition, and the Tendernefs of the Skin. This is hinted also by *Celsus*, Lib. 6. Cap. 1. where he observes, that the Ophiasis affects only the Hair of the Head; but the Alopecia extends itself to the very Beard.

The Cause of both Affections is a depraved and acrid Humour, of some Kind or other, that corrodes the Roots of the Hairs; tho' they generally proceed from a salt Phlegm, adust or putresc'd. Hence *Galen*, *De Diff. Symp. Cap. 4.* writes, that these Maladies are the Consequence of a depraved Nutrition of the Skin of the Head. The Reason why sometimes an Alopecia, at other times an Ophiasis, are occasioned, or that the Hairs sometimes leave a strait, sometimes a crooked Area, is owing to the Quantity and Quality of the Matter: For if the Matter be thinner and more copious than ordinary, it corrodes the Hairs alike in more and larger Spots; if it be scantier, and mix'd with a gross Humour, the Defluxion of Hairs becomes unequal and crooked, because the Humours, being various and mixed, don't readily take their Course strait forward, but creep obliquely, corroding the Hairs in their Way.

The more remote Causes are the Heat of the Liver and Head, and especially a Fault in the first and second Concoction, by which means salt and acrid Humours are generated. This Infirmary is incident to all Ages, but especially to Childhood, and succeeds the *Tinea*, *Achores*, and *Favi*.

Sometimes this Disease is produced also from external and malignant Causes, among which *Galen*, *De compof. Med. Sec. Loc. Lib. 1. Cap. 2.* accounts eating of Mushrooms, because they contribute much to the generating of vitious and corrupt Humours. Among other Causes of this Kind, we may reckon the Pox, which also corrodes the Roots of the Hairs; and other malignant and contagious Distempers may have the same Effect.

The Alopecia is distinguish'd from the Ophiasis by the Form of its Area, and in that it occasions only a Falling-off of the Hair, whereas in the Ophiasis not only the Hairs fall off, but the Skin is excoriated, and changes its Colour, sometimes turning whiter, sometimes paler, or blacker; and if it be pricked, a serous Blood issues out.

The Alopecia and Ophiasis differ from the *Tinea*; for in the Ophiasis the Excoriation in the Skin is but superficial, and when it is healed, the Hairs grow again; but in the *Tinea*, the Excoriation and Exulceration are deeper, and the Skin is oftentimes so vitiated, that the Hairs never grow again.

As to Signs of the Causes, the kind of peccant Humour may be known by the Colour of the Skin; for the better Observation of which, the Hairs which are left, are to be shaved off, and the Skin gently rubbed; and there are other Signs by which you may know what Humour abounds in the Body. The Hairs also, when they grow again, will shew by their Colour, which varies, according to the Nature of the morbid Matter, what kind of Humour is the Cause of this Affection.

The Alopecia and Ophiasis, tho' not attended with much Danger, occasion Deformity; and among the *Romans*, those Slaves, who were affected with an Area, and especially an Alopecia, were sold at a lower Price; and, in our Times, these Areas are matter of Disgrace, as giving a Suspicion of the Pox.

Whether the Alopecia or Ophiasis be most easy to cure, Authors are divided in their Sentiments. *Celsus* and *Avenzoar* write, that the Ophiasis is sooner cured than the Alopecia. *Alexander*, Lib. 1. Cap. 2. and *Serapion*, Lib. 1. Cap. 1. say the contrary. But *Celsus* seems to speak chiefly of the Ophiasis of Infants, which often goes off of itself, by the Benefit of Age and Change: But in Adults, indeed in any Age, if the Alopecia and Ophiasis be com-

pared together, the latter seems on all accounts more difficult to cure, as owing its Rise to a grosser and more malignant Humour, that corrodes not only the Roots of the Hairs, but the Skin itself, which does not happen in the Alopecia.

The more inveterate either of these Infirmities is grown, the more stubborn it is to be remedied; and the contrary.

If the Place grow red with Friction, there is Hope of a Cure; and the sooner it does so, the easier will the Cure be; if the Place grows not red with Friction, 'twill be in vain to attempt a Cure.

The worst Kind of Areas is, where the Skin is thick and fattish, and absolutely bald and smooth.

Alopecia and Ophiasis from a Leprosy, are incurable; from the Venereal Disease, are not to be cured, before that Distemper is removed.

There is good Hope of a Cure, when the Extremities of the Areas adjoining to the standing Hairs, begin to send forth Hairs: For the Parts next the sound ones, are less perverted from their natural State, and are therefore sooner restored, and begin to produce Hairs.

If a vitious Humour abounds in the whole Body, it is first of all to be evacuated; otherwise it would continually foment the Disease. And so if it accompanies the *Lues Venerea*, this latter must first be cured, before the other can be removed. So also a Distemper of the Viscera, on which depends the Generation of vitious Humours, is to be rectify'd. The antecedent Cause being removed, the continent or immediate Cause is to be taken off. This *Galen* effects by Repellents and Digestives; but Care must be taken at the same time to restore the Skin to its natural Temperament.

First then, the whole Body is to be purged by Remedies accommodated to the Nature of the peccant Humour. After this, *Galen* prescribes an Apoplegmatisim for Evacuation of the Head in particular.

As to the Matter, while it is yet fluctuating, and in its Beginning, before the Areas are formed, *Galen* makes use of Repellents. This is what *Avicenna* also advises, when he tells, that the Remedies for an Alopecia must be such as, by a moderate Astringency, strengthen the Skin of the Head, in *Septima quarti Tract. l. Cap. 6.* "These Medicines, says he, must be of a corroborating and repelling Quality, by which means the Head may be guarded against the Influx of the malignant Matter." But where the Alopecia and Ophiasis are already formed, Repellents have no Place, neither in these Cases, nor in the Itch.

If the Areas are already formed, and the Matter lodged in the Skin, Digestives are to be used. These are to be hot in Quality, of fine Parts, and not too dry; for if they should be of a drying Nature, they would not only discuss the vitious Humours, but also what should nourish the Hairs. And if the Temperament of the Skin be too hot and dry, as it is in confirmed Areas, cooling and moistening Medicines are to be intermix'd with the other Topics.

The Remedies which remove the proximate Cause of this Malady, are called *μετασυνκριτικά*, "Metasyncretica" [See the Word]. Here, first, if any corrupt Hairs still remain, they are to be drawn out either with Tweezers, or by Dropacism; or the Place must be shaved with a Razor. Then the Head must be washed with Lye, in which Capillus Veneris, Polytichum, Abrotanum, and such kind of Herbs, have been boiled; after the Washing, let the Place be rubbed with a Linen Cloth, not too soft, nor too dry, till the Skin begins to grow red; after which let Topics be apply'd, such as Mustard, Nasturtium, and Roots of white Lilies, (which last are also said to restore the Hairs after Combustions) Rocket-seed, Nitre, Oil of Bays, Tar, Sulphur, the Powder and Ashes of Abrotanum, the Root of Sowbread, of Hellebore, the Seed of Staves-acre, Pigeon's Dung, and, which are stronger than all the rest, Thapsia and Euphorbium; these last, the fresher they are, the more they retain of Acrimony, which they lose by being kept. Choice is to be made of these, as shall appear best suited to the Case, and due Application is to be made. For not all the Medicines just now enumerated are proper for all Areas, at all Seasons, in all their Degrees, and whether more or less inveterate; for each has its proper Season and Measure: To a beginning and slight Disease, a weak Remedy; to an inveterate one, strong Medicines are best accommodated; to tender Bodies, as of Women and Children, gentle Topics; to those of adult Persons, and Men, smarter ones are to be apply'd.

Galen, De Compos. Med. Sec. Loca, Lib. 1. Cap. 1. has many Compositions to this Purpose, examin'd and approv'd by long Experience, such as those of *Floras, Crito, Orestinus, Oritho Siculus, Cleopatra, Archigenes, Aesclepiades, Dionysiodorus, Soranus*, and others. He himself recommends the following:

Take of the Leaves of Arundo Græca burnt, four Ounces; of Hedgehog calcin'd, one Dram; of Mouse-dung, two Drams [in *Galen* it is two Ounces]; pound them in Vinegar, and anoint the Parts affected. Or,

Take of the Ashes of burnt Reed, Goats Hair burnt, Maidenhair, Bear's Fat, Tar, Cedar-Turpentine, of each an equal Quantity. This he calls an admirable Remedy. Or,

Take of domestic Mice burnt, Linen Cloth burnt, Horses Teeth calcin'd, Bear's Fat, Stag's Marrow, Bark of Reed, of each equal Parts; of Honey, a sufficient Quantity; make them into an Ointment. Or,

Take of Euphorbium, Thapsia, Oil of Bays, each two Drams; Sulphur vivum, Hellebore, each one Dram; Wax, six Drams; melt them up, and mix them together with Oil of Bays, or old Oil, or Tar. This is the strongest Medicine of all, and best accommodated to the Disease, when grown inveterate.

In a more moderate Degree of the Distemper, a Remedy prepared of Abrotanum, or the Roots of Reed burnt, mixed with old Oil, or Oil of Bays, or Tar, will be sufficient. Or,

Take of Rocket-seed, Nasturtium, Nitre, and mix them with Oil of Bays, or Tar. Or, which is milder, and adapted to Women and Children,

Take of Abrotanum, the Ashes of the Root and Bark of Reed, Frankincense, an equal Quantity; of Bear's Fat, and Oil of bitter Almonds, a Sufficiency. Make a Liniment. If there be Occasion to make it stronger, you may add Froth of the Sea, Sulphur vivum, Ox Gall, Rocket, Nitre, or even Thapsia. Or,

Take of Mustard, Thapsia, and Seed of Nasturtium, equal Parts; reduce them to a fine Powder, and add thereto Oil of Bays and Refin, of each a sufficient Quantity; and make thereof a Plaster by the Fire-side.

A Multitude of such Remedies are every-where to be found in the Works of *Valescus de Taranta, Rondeletius, Hollerius, Trincavellius*, and other practical Physicians.

In using the stronger Kinds of Medicines, observe to apply the softer and more liquid Sorts, and such as are temper'd with the Mixture of Oils, which moderate in some measure their Force; and then taking Notice of what Alteration is wrought in the Part affected by the first Medicine, increase or diminish its Strength, as you see Occasion. Now an Alteration may be best discover'd by attentively observing whether the Skin be grown redder, or will redden with a strong or gentle Friction. For the greatest Care is to be taken, that the Skin be not parched by the repeated Use of the stronger Medicines. It is farther to be observed, with respect to compound Medicines, that, if the Parts are quite bare, they are fittest to be used in a solid Form, as by way of Plaisters; but if the Hairs are not clean gone, more liquid and softer Forms, such as Liniments and Ointments, are most convenient.

The milder Topics must remain Night and Day on the Part, that they might be able to exert their Force; the stronger ones, till you can perceive they have made some Alteration in the Skin, and Pain begins to be felt. Therefore in using these latter, the affected Part is to be inspected once or twice every Day; and if they have had too rough an Effect, recourse must be had to milder ones; and the Part is to be anointed with the Fat of a Goose, Oil of Dill, or some such Anodyne Medicine; for if the stronger Remedies be kept on longer, they will burn the Skin. Thus *Christophorus a Vega* writes, That he had seen not a few Persons, who by the Use of too forcible Medicines, were reduced to a perpetual Baldness, or remained all their Life-time without a Beard.

A Regimen of Diet is also very effectual in the Cure of an Alopecia and Ophiasis. Such Meats are to be chosen as generate good Blood, and put a Stop to the breeding of ill Humours. Let the Food be such Eatables as contain a good Juice, which may rectify the depraved Fluids. Let the Patient abstain from Wine till the Body be purged; for Wine serves as a Vehicle to carry the detained and corrupt Humours into the Veins. After sufficient Purging, Wine that is mild, and of a sweetish Taste, may be indulged, since it nourishes much, and generates good Blood. A warm Air suits best with the Patient. *Sennertius, Lib. 5. Part. 3. Sect. 2. Cap. 4.*

ALOPECUROS, from *αλωπηξ*, a Fox, and *ουρ*, a Tail. It is a Plant thus distinguish'd:

ALOPECUROS, Offic. Ger. 81. Emac. 87. *Alopecurus pruriens*, Park. Theat. 1166. Hist. Oxon. 3. 191. *Gramen Alopecuros spica brevis*, J. B. 2. 474. Chab. 186. Rall. Hist. 2. 1265. *Gramen Alopecuroides spica rotundior*, C. B. Pin. 4. Theat. 56. Boerh. Ind. A. 2. 159. Flém. Bot. 418. *Gramen spicatum tomentosum longissimis aristis donatum*, Tourn. Inst. 517. FOX-TAIL. Dale.

It is a very tender Herb, with a short Spike of about two Inches, pretty round, and nearly resembling a Fox's Tail, white and thin. The Husks that hold the Down are almost hid by the Thickness of the downy Tufts, and are pretty long-bearded, soft, and of a circular Form. The Stalk has many Joints, and grows to the Height of a Cubit, or a Cubit and half, beset with grassy Leaves, which are cover'd with very fine soft Hair. The Root is small, white, and has abundance of Filaments.

It is observed to grow in Sicily, at Baia in Italy, and in Languedoc near Frontiane, chiefly in sandy Ground, but with a short Spike, and a low Stalk, not above a Foot high, and very slender in the upper Part. *Raii Hist.* 1265.

I don't find any Virtues ascrib'd to it.

Ray, besides the above, enumerates the following Species :

1. *Gramen Alopecuro simile Glabrum, cum Pilis longiusculis in spica, Onocordon mihi denominatum, J. B. Alopecuroides Major, Ger. Phalaroides Majus, Park. Gr. Phalaroides majus, seu Italicum, C. B. & forte etiam Phalaroides spica molli, sive Germanicum, C. B. Park.* THE MOST COMMON FOX-TAIL GRASS. This grows very plentiful in Meadows and Pastures throughout England.

2. *Gramen Aquaticum geniculatum spicatum, C. B. Fluviatile spicatum, Ger. Aquat. spicatum, Park.* SPIKED FLOTE-GRASS.

3. *Gramini Caudæ Muris purpurascenti aliquatenus simile, J. B.*

4. *Gramen Alopecurinum minus, Ger. Alopecuroides spica longa majus & minus, Park. Typhoides, V. seu spica angustiore, C. B. Cum Cauda Muris purpurascente, J. B.* THE LESSER BASTARD FOX-TAIL GRASS.

5. *Gramen pumilum hirsutum spica purpureo-argentea molli, nostras.* THE DWARF HAIRY FOX-TAIL, WITH A SILVER WHITE SPIKE INCLINING TO PURPLE.

6. *Gramen Alopecuroides spica aspera, C. B. Alopec. spica asp. brevi, Park. Gra. cum cauda Leporis aspera, sive spica murina, J. B. Alopecuroides spica aspera Baubini. Ger. Emac.* ROUGH-EAR'D FOX-TAIL GRASS.

7. *Gramen Alopecuros spica longa tomentosa candicante, J. B. Alopecuros major spica longiore, C. B. Gr. Alopecuroides alterum radice repente, seu Pseudo-Schœnanthum Monspelienfium, Park. Schœnanthum adulterinum, Ger.* GREAT LONG-EAR'D FOX-TAIL GRASS.

8. *Alopecuros maxima Anglica, Park. Altera maxima Anglica paludosa, Ger. Emac. Altera maxima Anglica paludosa, sive Gramen Alopecuroides maximum, J. B. Lob. Adv. part. alt.* GREAT ENGLISH MARSH FOX-TAIL GRASS.

9. *Gramen Alopecuroidi accedens ac Phalaridi, spica longiuscula, folio lanuginoso, J. B. Typhoides molle, C. B. Alopecuroides minus, Ger.* Long-ear'd soft-leaved FOX-TAIL.

10. *Gramen cum cauda muris, foliis hirsutis, J. B. Typhoides culmo reclinato, C. B. Alopecurinum majus, Ger.* THE GREAT BASTARD FOX-TAIL GRASS.

11. *Gramen Alopecuros altera Lobelii, J. B.* ONE OF THE SPECIES OF FOX-TAIL OBSERV'D BY LOBEL.

12. *Gramen Alopecuros minus spica longiore, C. B. Cauda vulpina Monspelienfium, Adv. Lobel.* FOX-TAIL OF MONTPELLIER.

13. *Gramen Typhoides maximum spica longissima, C. B. Typhoides maximum, Park. Typhonum tertium, Ger. Emac.* THE GREATEST CATS-TAIL GRASS. *Raii Hist.* p. 1264.

ALOPEX is a Sea-fish, mention'd by Oribasius, (*Med. Coll. Lib. 2. Cap. 58.*) among those which frequently come up the Rivers into fresh Water, and are hard of Concoction.

ALOSA five CLUPEA, the Shad: It is a Sea-fish, which often travels into Rivers; it grows to the Bigness of a Salmon; it is cover'd with large Scales, but thin and easy to be pulled off; it is sharp-snouted, and has no Teeth; there appears at the Top of its Head, above its Eyes, a Bone or a Scale on both Sides, which is bright and shines; its Tongue is blackish, the Back is of a yellowish White, the Sides and Belly of a silver Colour. This Fish loves Salt, and has a delicious Taste; it contains a great deal of volatile Salt and Oil. When this Fish is not very fresh, it has a Taste somewhat acrid, which offends the Gums of those who eat it.

They find in the Head of this Fish a stony Bone, which is Aperitive, and good for the Gravel and Stone, and to absorb Acids, being itself alkaline.

The Stomach of this Fish, dried and reduc'd to Powder, is proper to strengthen the Stomach, being taken inwardly. *Lemery de Drogues.*

It agrees in the Spring, when it is better than in any other Season of the Year, with any Age and Constitution, provided it be moderately used.

It's said this Fish is so afraid of Thunder, that the Noise thereof many times kills it out of Fear. *Rondeletius* says,

that he had seen some of them, by playing on the Lute, run and skip about on the Face of the Water.

They pickle Shad to keep, and for the exporting it into other Parts; but 'tis not so well tasted as before. *Lemery on Foods.*

ALOSANTHI, Flos Salis, Flower of Salt. *Rulandus.*

ALPAM. This is the Siliquosa Indica flore tripetalo, filiquis teretibus, pulpa absque feminibus repletis. *Raii Hist. Plant.*

The Stem of this Plant, which divides itself twice or thrice, is covered with a Bark of an ashy, green Colour, inodorous, and of an acid astringent Taste. The Branches are of a whitish Wood, have a green Pith running thro' them, and are distinguished into Joints. The Root is red, composed of a great Number of capillary Fibres, which disperse themselves on every Side. The Leaves are of a narrow oblong Form, and terminate in a sharp Point, of a Deep-green on the Outside, but pale on the Inside, have their main Rib very much branched, are interwoven with many Veins and Fibres, and are set single on thick, short Pedicles, which are flat on the Inside. They have a Smell not ungrateful, and taste somewhat acrid. The Flowers, which are of a dark-purple Colour, and inodorous, grow on very slender, round Pedicles, sometimes two or three together, and consist of three broadish, sharp-pointed Leaves, which are covered on the Outside with very white Hairs, and in the Middle have their Stylus divided into three oblong, red Stamina or Chives, that cross one another. To the Flowers succeed the Pods, which are sharp-pointed, round, and full of a carnosé Pulp, but without Seeds, at least any that are discernible.

It delights in sandy, open Soils; and is found in great Plenty in *Aregatti* and *Mondabelle*, and many other Places.

It bears Flowers and Fruit, as well at the End of the Year as in the Beginning, and is always full of Leaves.

Any Part of this Shrub, made into an Ointment with Oil, is a powerful Remedy in case of the Scab, and old Ulcers.

The Juice of the Leaves, with Calamus Aromaticus, is good against the Venom of Serpents; and the Root bruised with Juice of Lemon, tied in a little Knot, and thrust up the Nose, by way of Errhine, is esteemed a Specific against the Bite of the Serpent called *Regulus*, or *Cobra Capella*. The Poison of a young *Cobra Capella* is also expelled by the Root drank in Cow's-milk. For the same Purpose Cataplasms are likewise used, made of this Root and Calamus Aromaticus.

ALPHABETUM CHYMICUM. *Raymond Lully* has presented the World with a Chymical Alphabet, but to what End, and with what Design, will be a difficult Matter to discover, especially till it can be understood; and till then I shall beg Leave to give it in his own Words, it being very difficult to translate what one cannot comprehend.

Significationes Literarum hujus Testamenti.

- A Significat Deum.
- B Significat Mercurium.
- C Significat Salis petram.
- D Significat Vitriolum.
- E Significat Menstruale.
- F Significat Lunam claram.
- G Significat Mercurium nostrum.
- H Significat Solem purum.
- I Significat compositum Lunæ.
- K Significat compositum Solis.
- L Significat terram compositi Lunæ.
- M Significat aquam compositi Lunæ.
- N Significat aerem compositi Lunæ.
- O Significat terram compositi Solis.
- P Significat aquam compositi Solis.
- Q Significat aerem compositi Solis.
- R Significat ignem compositi Solis.
- S Significat lapidem album.
- T Significat Medicinam corporis rubei.
- U Significat calorem fumi secreti.
- X Significat ignem siccum cineris.
- Y Significat calorem balnei.
- Z Significat separationem Liqueurum.
- z Significat alembicum cum cucurbita.

ALPHENIC, an Arabic Word, which signifies Sugar-candy, or Barley-sugar. *Blancard.*

ALPHESERA, the same as ALFESERA, which see.

ALPHITA, ἀλπιτα, the Plural Number of ἀλπιτον; it is said to signify, strictly, the Meal of Barley hull'd and parch'd; though some take it to be the Meal of Barley, as ἀλευρον, according to their Interpretation, is the Meal of Wheat. It is certain, however, that *Hippocrates* uses ἀλπιτα to express the Meal of all sorts of Seeds. And *Galen* tells us, It signifies Meal of a moderate Fineness; whereas κελυνα signifies the coarsest Sort, and ἀλευρα the finest; and this Explanation seems the nearest to Truth.

Ἀλπιτα τεκωνια is also mention'd by *Hippocrates*, and signifies probably Meal made of very new tender Barley, before it

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was laid to dry in the Granaries. It seems it was the Custom amongst the Antients, especially those who liv'd in moist Situations, to set a Post erect upon a Floor, and lay their Barley round it, to dry, so that the Heap resembled a Cone (*κωνος*). *Ἀλεριτα περὶ ὧν* then was Meal made of Barley, before it was laid to dry in this manner; though *Galen* says, some took it to signify Meal made of Barley unparch'd.

Hence *Ἀλεριτον* was also taken for a kind of Hasty-pudding, which the *Romans* call'd *POLENTA*. It was generally made of Barley-meal moisten'd with Water, or any other Liquid, as Wine, Must, or Hydromel. This was a very common Food, especially amongst the Soldiery, and therefore we may conclude it was esteemed very coarse. *Hippocrates* frequently orders *Ἀλεριτα* medicinally, without Salt (*ἀναλτα*). Hence

ALPHITEDON, *ἀλεριτηδὼν*, was apply'd to a Fracture, when the Bone was broken into very small Fragments, like *Alphita*.

ALPHUS, *ἄλφω*, one of the three Species of *Vitiligo*, the other being *Melas* and *Leuce*, described by *Celsus*; in which, says he, the Skin is of a white Colour, with a kind of Roughness for the most part, not continuous, but sprinkled with somewhat like Drops; sometimes it spreads to a considerable Breadth, with some void Intervals. *Celsus*, *Lib. 5. Cap. 18.*

Some Authors make but two Species of *Vitiligo*, comprehending the *Melas* under the common Name *ALPHUS*.

The *Alphi* bear the same Analogy to the *Leuce*, [*λεύκη*] as the Scabies to the Lepra: For the *Leuce* commonly descends deep in the Flesh, and infects the Hairs with their own Colour, but the *Alphus* sticks in the Superficies; though now-and-then they take deeper Root, and also change the Colour of the Hairs. The *Alphus*, for the most part, is of a milder Nature than the *Leuce*, and gives way to moderate Remedies; but when grown inveterate, it approaches more and more to the Nature of the *Leuce*, and has Need of the same Medicines. *Aëtianus*, *Metb. Med. Lib. 2. Cap. 11.*

The Species of *Vitiligo* called the *Leuce*, is generated from a pituitous and glutinous Blood, which by Length of Time assumes a whiter Colour. The *Alphus* has a like Original, but does not penetrate the Flesh, sticking only about the Skin. The *Alphus* is generated from a pituitous Humour, the black from an atrabilious. The Lepra is generated by a Humour that sinks deep within the Flesh, but the Scabies principally affects the Superficies of the Skin.

One of the most certain Remedies for these sort of Distempers is to wash the Parts affected with Lime and Water, made considerably strong or thick, which is done by pouring Water upon Lime-stones washed and dried. But the *Alphus* requires only a thin or weak Liquor, the Scabies a thicker, but the Lepra a very thick or strong one. The Root of Tarragon in Vinegar cures the *Alphus*, being washed therewith, and both the Hellebores do the same. The Decoction of bitter Lupines, or the Meal thereof, with Honey or Vinegar, externally used, have a like Effect. Other Remedies are, the Bark of Capers-roots and Vinegar, Lily-roots and Honey, Onion and Vinegar apply'd in the Sun, the Dung of a Lizard, Starlings fed only on Rice, and the Shell of the Cuttlefish calcined. *Oribasius de Morb. curat. Lib. 3. Cap. 58.*

The *Alphus* is so called from *ἀλφαίνω*, an old Word, signifying to change, because it changes the Colour of the Skin. It has the same kind of Original with the *Leuce* and Lepra, only is not so deeply rooted, but like Scales sticking on the Skin, the white ones being derived from a phlegmatic, the black ones from an atrabilious, Humour.

To cure the white and black *Alphus*:

Take Fig-leaves, Sulphur vivum, Alum, of each an equal Quantity, and Vinegar, and anoint the affected Parts, it being an excellent Medicine.

For the black *Alphus*, in particular:

Take of black Hellebore, and Terra Cimolia, equal Quantities, and dilute them in Water, or Vinegar, to the Thickness of Lees of Oil, and therewith anoint the Parts in the Sun, being first well rubb'd over.

For the black *Alphus*, when grown inveterate, and harden'd to a Callus on the Superficies of the Skin:

Take of the Root of the black Chamæleon, nine Ounces; Sulphur vivum, two Ounces; Aphronitre, one Ounce: Macerate them in Vinegar, and therewith anoint the Parts in the Sun.

Another most effectual Medicine, and sweet-scented withal, is as follows.

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Take of white Hellebore, eight Drams; Iris, Aphronitre, Costus, each four Drams: Macerate them in Vinegar, and so rub them on the Parts in the Bath, without mingling any Fat with them.

Another very celebrated Remedy for both the black and white *Alphus*; viz.

Take of Myrrh, Sulphur vivum, Spuma Nitri, white Hellebore, each two Ounces; burnt Bastard-sponge, an Ounce and an half: Make them into a Wash-ball, and use them in the Bath, or in the Sun with Vinegar.

But here is to be noted, with reference to all that has been said, That Purging ought to precede external Applications. For the white *Alphus* you may begin with *Galen's* Hiera, or Pills of Colocynthis and Aloes; and for the black sort, you may purge with black Hellebore and Epithymum. *Actius Tetr. 4. Serm. 1. Cap. 132.*

ALRAMUDI cineritious. *Rulandus.*

ALRATICA, a Word used by *Ambroscus*, to signify the total or partial Imperforation of the Vagina, whether natural or accidental.

ALSAMACH, or *ALSEMACH*, the Arabic Name for the great Foramen in the Os Petrosum.

ALSECH, Alumen Janici. *Rulandus.* That is, Alumen Plumosum.

ALSELAT, Burnt Copper. *Rulandus.*

ALSINASTRUM.

1. *Alsinastrium Gratiolæ folio*, *Inst. 244.* & *Alsinastrium Gallii folio*, *Ibid.* Found by Mr. J. Sherard, on hoggy Ground, on the Common just by the Road from Eltham to Chislehurst. *Syn. Stirp. Brit. 346.*

The Roots are composed of white Fibres coming out of the lower Joints of the Stalk, and disposed in Whirls. The Stalk is divided on the Inside, and lengthwise, into ten Cells, formed by little membranaceous Leaves, which are placed in Form of a Ray. It is channelled throughout its Length; and that Part which appears above the Water is pale, the other washed with a little Purple, and distinguished with Joints, at the Distance of two Lines, to which are fastened eight or ten Leaves, and sometimes twelve, before the Stalk gets above the Water. These Leaves are disposed in Rays, and are but about one third Part of a Line broad at their Base, to eight or ten Lines in Length. Those which appear above the Water, are much broader and shorter not much unlike those of the *Glaux Maritima*, C. B. The Flowers grow in the Bosoms of some of the Leaves, and consist of four white round Petals, about one half of a Line in Diameter, placed round a Pointal, and opposite to the Divisions of an Empalement, which is cut into four equal Segments. It has four very short Chives sustaining white Summits. The Pointal at last becomes a round flat Capsule, ribbed like a Melon, having a Navel on the Forepart, and opening into four Parts to the very Base, and disclosing many oblong Seeds. It flowers in July and August. *Vaill.*

2. *Alsinastrium serpyllifolium, flore albo tetrapetalo.* *Vaill. 5.*

3. *Alsinastrium serpyllifolium, flore roseo tripetalo.* *Vaill. 5.* *Martin's Tournesort.*

ALSINE. A Plant thus distinguished.

Ἀλσίνη, *Dioscorid.*

1. *Alfine*, *Offic. Alfine minor*, *Park. Theat. 760.* *Alfine media*, C. B. *Pin. 250.* *Hist. Oxon. 2. 550.* *Tourn. Inst. 245.* *Elem. Bot. 208.* *Boerh. Ind. A. 209.* *Rupp. Flor. Jen. 87.* *Dill. Cat. Giss. 41.* *Buxb. 16.* *Merc. Bot. 1. 18.* *Phyt. Brit. 6.* *Alfine minor five media*, *Ger. 489.* *Emaç. 611.* *Alfine vulgaris five morsus Gallinæ*, *J. B. 3. 363.* *Raii Hist. 2. 1030.* *Synop. 3. 347.* *Alfine five morsus Gallinæ*, *Chab. 449.* *Alfine minor media*, *Mer. Pin. 5.* *CHICK-WEED.* *Dale.*

ALSINE is by some called *Monscar*, because its Leaves resemble the Ears of Mice: But it has the Name of *Alfine* from [*ἀλσος*, *lucus*], it delighting in Groves, and shady Places. The Herb is like Pellitory of the Wall, but lower, and with longer Leaves, and not at all rough, but being rubbed, sends forth a Smell like a Cowcumber.

It is of an allringent and refrigerating Quality, on which Accounts it is good for Inflammations of the Eyes, being apply'd in a Cataplasm with *Polenta*. The Juice of it, instill'd into the Ears, cures the Pains thereof; and, in short, it has the same Virtues, and serves for the same Purposes, as the *Helxine*. *Dioscorides, Lib. 4. Cap. 87.*

It grows in Gardens, especially on the Walls. It springs in the Midst of Winter, and withers away in the Heat of Summer. It is weaker than the *Helxine*, but has a peculiar Virtue in Inflammations of the Eyes. It is good also in Ulcers, and Distempers of the Pudenda, being apply'd with Barley-meal. [*Farina Hordeacea*, by which, no doubt, *Pliny* means the same as *Dioscorides* by his *αλσίνα*, commonly render'd *Polenta*.] *Pliny, Lib. 27. Cap. 4.*

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Continued

Chickweed is a small tender Plant, arising above half a Foot high, having its weak brittle Stalks growing thick together, which are round, and have two small roundish sharp-pointed green Leaves, growing at each Joint, opposite one to the other; on the Top of each Stalk, it bears many small, star-like, white Flowers, of five narrow Leaves apiece, with a green *Calyx* cut into as many Parts under them. The Seed-vessel is long and round, containing many small, round, brownish Seeds. The Root is small and fibrous, perishing after Seed-time. It grows every-where in moist Places, and in Gardens too frequently.

Chickweed is cooling and moistening, good for Inflammations of the Liver, St. Antony's Fire, Redness and Pimples in the Face, being applied to the Parts affected as a Cataplasm, or Cloths dipp'd in the Juice, laid on, and now-and-then shifted; made into a Poutice with Hog's-lard, it helps hot Swellings and Tumours; the Juice dropp'd into the Eyes, takes away Redness and Bloodshot. *Miller Bot. Off.*

It contains a great deal of Phlegm and Oil, and but little Salt.

It is sweetening and thickening, it stops the Flux of the Hæmorrhoides, and it mitigates Pain, being taken in Decoction, and externally apply'd. *Lemery de Drogues.*

It grows in watery Places, by the Sides of Hedges and Paths. The Herb is in Use; it refrigerates and moistens, and has the Virtues of Pellitory of the Wall, only it has no Astringency. It is supposed to be very nutritive, and therefore a wholesome Food for Persons in an Atrophy or Phthisis. *Dale.*

The Chickweed varies according to the Place of its Growth, as *Tragus* has observed. The Figure of the *Alfine media*, *Tabern.* represents it high and spreading, as one finds it in shady Places. In *Dodonæus's* Figure it appears more low, bushy, and like that which grows frequently in Gardens. I suspect it is the *Alfine marina* of this last Author. *J. Baubin* supposes this to be the Species which he has named *Alfine Plantaginifolia*. For my part, I do not like *Dodonæus's* Figure; and it seems to resemble neither *J. Baubin's* Plant, nor that of which we are speaking: So that it is a Wonder, that *Lobel* should make use of this Figure to represent the Chickweed; but he had but a confused Notion of it, as *J. Baubin* demonstrates. *Thalins* probably spoke of this Plant, under the Name of *Alfine minor*; but as he makes several Species of it, we must say *Alfine minor foliis oblongis mucronatis*, and not simply *Alfine minor*, as *C. Baubin* has done.

The Chickweed is of an herby Taste, a little saltish. *Cordus* found something nitrous in it; nevertheless, as it gives a pretty deep-red Colour to the blue Paper, its Salt seems to resemble the Sal Ammoniac, which is natural in the Salt of the Earth, but in this Plant is dissolved in a great Quantity of Phlegm. *J. Baubin* affirms, That the distilled Water of Chickweed, or the Infusion of it in Wine, restores those who are emaciated, after long Diseases. *Schroder* commends it highly for the Phthisis. The Use of this Plant cures Children of Convulsions; and they give a Dram of its Powder for the Epilepsy. *Solenander* says, That its Powder being laid on the Piles, stops their immoderate Flux, and alluages the Pain. The Juice of Chickweed is vulnerary and deterfive, like the Sal Ammoniac, which is good to cleanse the Mouth, and take away Inflammations. For spitting Blood, the Patients must eat Omelettes made of this Herb, minced small, instead of Parsley. Applied to the Breasts, it dissolves the curdled Milk, and dissipates the too great Quantity of this Liquor. To all these Virtues we may add that of cooling, which is attributed to the Chickweed: For the greatest Part of Remedies cool no otherwise, than by quickening the Motion of the Blood, which, because of some Obstructions in the Bowels, stagnates, ferments more violently, and heats all the neighbouring Parts. Aperitives are capable of cooling in that Sense, because they open the Passages through which the Liquors ought to circulate. The Antients, who in Remedies inquired more into the Effects than the Causes, ought not to be blamed for calling the greatest Part of those cooling, which are capable of augmenting the Motion of the Humours. Every body knows, that Chickweed is frequently used to restore the Appetite to Canary-birds, Linnets, and other caged Birds: This Use is not new, *Tragus*, *Anguillara*, and several Authors, have mentioned it.

2. *Alfine Plantaginifolia*, J. B. 3. 364. PLANTAIN-LEAVED CHICKWEED. In shady Places, and among Bushes.

Mr. Ray has described this Plant very well, but he had no Reason to suspect, that it was that which *C. Baubin* calls *Alfine aquatica media*: That of *Baubin* is very well engraved in *Tabernæmontanus*, and is not often found but along the Brooks, in the Pyrenees, and the Alps.

The Petals of this are intire; it is the *Spergula Plantaginifolia*. *Dillen. Cat. Giff. 58.*

3. *Alfine minor multicaulis*, C. B. Pin. 250. *Alfine minima*, J. B. 3. 364. THE LEAST CHICKWEED ON WALLS.

J. Baubin's Figure is transposed; that of *Tabernæmontanus*, who calls it *Alfine minor*, is not bad. This Plant varies according to the Place where it grows; and I believe there is little Difference between it and that which the same Author calls *Alfine petraea minima*. If *Tragus* intended to comprehend it under his four Species of Chickweed, he is mistaken; for its Flowers are whitish, and not blueish.

This also has intire Petals: It is the *Spergula multicaulis*, *Dillen Cat. Giff. 58.*

4. *Alfine verna glabra, floribus umbellatis albis*, *Inst. 242.* *Caryophyllus arvensis umbellatus, folio glabro*, C. P. Pin. 210. *Caryophyllus arvensis umbelliferus*, J. B. 3. 361. *Holostium Caryophyllum arvense*, *Tabern. Icon. 233.*

This last Author's Figure is a great deal better than that of the *Alfine verna*, *Lugd. Dalechampi*, however, is the first who has ascribed this Plant to its true Genus. *Fabius Columna* has confounded it with that which he calls *Eufragia Linifolia*. Part 2. 68.

M. Vaillant has observed, That the Flower of this *Alfine*, or *Spergula*, has but three Chives; and that the Pointal ends in three Threads, which are expanded horizontally. *Martyn's Tournefort.*

5. *Gramen Leucanthemon*, *Offic. Ger. 43.* *Emac. 47.* *Park. Theat. 1325.* *Gramen Fuchsi sive Leucanthemon*, J. B. 3. 361. *Chab. 448.* *Caryophyllus arvensis glaber, flore majore*, C. B. Pin. 210. *Caryophyllus holosteus arvensis glaber flore majore*, *Raii Hist. 2. 1027.* *Synop. 3. 346.* *Holostium vernum seu Gramen Leucanthemon*, *Mer. Pin. 63.* *Holostium vernum, flore majore*, *Euphrasia Gramen Tragi*, *Merc. Bot. 1. 43.* *Phyt. Brit. 60.* *Lychis arvensis glabra, flore majore*, *Hist. Oxon. 2. 546.* *Boerh. Ind. A. 214.* *Alfine pratensis, gramineo folio ampliore*, *Elem. Bot. 209.* *Tourn. Inst. 243.* *Dill. Cat. Giff. 50.* *Rupp. Flor. Jen. 87.* *Buxb. 18.* *Alfine holostea glabra, folio gramineo, flore majore*, *Volck. Flor. Nor. 21.* STITCHWORT.

It grows in Woods, bushy Places, and Hedges every-where, and flowers in the Spring. The Herb is used, which is of a refrigerating and drying Quality, and is good for Inflammations of the Eyes. *Dale.*

Dodonæus affirms, That the Fruit of this Species is oblong; it appears to me to be rather spherical.

The Juice of this Plant, its distilled Water, its Leaves and Flowers bruised, are good to appease the Inflammation of the Eyes; for which Reason *Tragus* calls it *Euphrasia gramen*, 329.

6. *Alfine pratensis, gramineo folio angustiore*, *Inst. 243.* *Caryophyllus arvensis glaber, flore minore*, C. B. Pin. 210. *Gramini Fuchsi Leucanthemo affinis, & similis planta*, J. B. 3. 361. THE LESSER STITCHWORT. Among Bushes, especially in a sandy Soil.

J. Baubin's Figure is good for nothing at all; that of *Tabernæmontanus* is good, under the Name of *Gramen floridum minus*, *Icon. 232.*

Mr. Ray observes very well, That the Summits of this Species are red.

7. *Alfine altissima nemorum*, C. B. Pin. 250. *Alfine major, repens, perennis*, J. B. 3. 362. *Alfine major*, *Dod. Pempt. 29.* GREAT MARSH CHICKWEED. In marshy Places, and by the Sides of Brooks.

Mr. Ray had Reason to believe, that it was the same Plant with the *Alfine aquatica major*, C. B. Pin. for the *Alfine palustris*, *Tabern.* does not seem to be different from the *Alfine major* of the same Author.

8. *Alfine maxima folanifolia*, *Mentz. pug. Tab. 2.*

This Plant is larger than the preceding; its Leaves are waved and notched upon the Edges. Mr. Ray believes it to be but a Variety.

M. Vaillant corrects our Author with regard to the Notches of the Leaves, and denies that any *Alfine* has notched Leaves.

9. *Alfine tenuifolia*, J. B. 3. 364. FINE-LEAVED CHICKWEED. On the Borders of *Triplow Heath* in *Cambridgeshire*.

This Plant intirely resembles that which *J. Baubin* describes to grow about *Montpelier*; and I believe that *C. Baubin* has described it under the Name of *Alfine nodosa Germanica*. *Prodr. 116.*

This has intire Petals: I have called it *Spergula tenuifolia elatior*. It flowers in May and June.

10. *Alfine verna glabra*, *Bot. Monsp. desc. 14.* *Alfine tetrapetalos, Caryophylloides, quibusdam Holostium minimum*, *Raii Hist. 1025.* *Alfinella foliis Caryophyllis*, *Cat. Giff. 47.* THE LEAST STITCHWORT. It is common in barren, gravelly Places.

The Flower consists of four white, blunt-pointed Petals, two Lines long, and half a Line broad. The Centre of the Flower is occupied by an oval Pointal, encompassed by four Chives, with white Summits, and divided at Top in form of a Cross. The Empalement is tetraphyllous. The Fruit is cylindrical and transparent, having eight indentations at the Top. It flowers in April and May. *Vaill.*

11. *Alfine minima flore fugaci*, Inst. 243. *Saxifraga Anglica Alfinefolia annua*, D. Plot. Raii Hist. 1026. Synopf. Ed. 3. 345. ANNUAL PEARLWORT.

The Flower of this is like that of the former; but the Petals of this are very soon lost, whereas those of the former commonly stick about the Fruit till it is ripe. The Seed-vessel of this opens at Top into four or five Segments. It is said to be found about *Hedington* and *Cowley* in *Oxfordshire*.

12. *Alfine spargulae facie minima, seminibus nudis*, Inst. 244. *Saxifraga palustris Anglica*, Ger. Em. 567. *Arenaria*, J. B. 3. p. 2. 723. Vaill. 7. *Spergula minor, foliis Knäwel, flore majusculo albo*, Dillen. Cat. Giff. 156. ENGLISH MARSH SAXIFRAGE. In boggy Places it flowers in July.

13. *Alfine saxatilis & multiflora, capillaceo folio*, Inst. 243. *Alfine polygonoides herbacea minor, Laricis foliis capillaceis, ex uno pediculo plurimis*, Pluk. Phytogr. Tab. 75.

The Fruit of this Plant (according to Mr. *Vaillant*) opens into three Parts, from Top to Bottom. The Petals are entire.

14. *Alfine segetalis, gramineis foliis, unum latus spectantibus*. Vaill. 8.

The Petals are entire; the Seeds are very small and brown. It flowers in May and June. *Ibid*.

15. *Alfine spargulae facie, minima, seminibus marginatis*, Inst. 244. *Alfine spargulae facie, minima*, Bot. Monsp. 14. *Spergula annua, semine foliaceo nigro, circulo albo membranaceo cincto*. Mor. H. Ox. 2. 351.

Dr. *Sherard* found it in *Ireland*, in sandy Places.

16. *Alfine spargula dicta major*, C. B. Pin. 251. *Spergula*, J. B. 3. 722. Dod. Pempt. 537. SPURREY. It is often found amongst Corn.

17. *Alfine spargulae facie minor, sive spargula minor, flosculo subcaeruleo*, C. B. Pin. 251. *Spergula purpurea*, J. B. 3. 722. PURPLE SPURREY. Common in sandy Places.

18. *Alfine folio gramineo angustiore, palustris*, Dillen. Cap. Giff. 173. *Caryophyllus holosteus arvensis medius*, Raii Synopf. Ed. 3. 347.

This is easily distinguished by its glaucous Colour. I have found it in great Plenty on the boggy Grounds about *Gamlingay* in *Cambridgeshire*.

19. *Alfine segetalis, gramineo folio glabro, multiflora*. D. *Sherard*. Raii Supp. 500.

20. *Alfine Hyperici folio*, D. *Vaillant*, Inst. 242. *Alfine longifolia uliginosis proveniens locis*, J. B. 3. Lib. 19. 365. *Alfine aquatica media*, C. B. Pin. 251. *Alfine fontana*, Tabern. Ic. 712. LONG-LEAVED WATER CHICKWEED. In Boggs and watery Places.

It flowers in May, June, and July. Its Flower is but too Lines in Diameter. It has five white entire Petals, ending in a Point. They are placed immediately upon the Segments of the Empalement, which they cover; the Chives are ten in Number; the Pointal is surmounted by three Threads, disposed in a Triangle. The *Alfine fontana*, Tabern. Ic. 712. resembles our Plant pretty well. *Morison* (H. Ox. 2. 551.) says, the Petals are bifid, but he is mistaken. Mr. *Ray* (Synopf. 348.) is likewise mistaken; for he affirms, that they are divided in two, to the very Base. *J. Baubin* says, the Flower has ten white Petals. *Vaill*.

21. *Alfine Alpina subhirsuta, Linariae folio*, Inst. 339. *Lychnoides Juniperi folio, perennis*. Vaill. 121.

22. *Alfine palustris minima, flosculis albis, fructu Coriandri exiguo*, Ment. Pug. Tab. 7.

ALSINEFORMIS. A Plant thus distinguished:

Alsineformis paludosa tricarpos, flosculis albis inapertis, Pluk. Phytog. Tab. 7. Fig. 5. *Alsine palustris, Portulacae aquaticae similis*, Raii Hist. 1035. *Portulaca exigua sive arvensis Camerario*. J. B. 3. 678. SMALL WATER CHICKWEED, OR PURSLANE, BY SOME CALLED BLINKS.

It flowers in the Spring, and is not uncommon in moist and boggy Places. Dr. *Dillenius* says, the Flower is monopetalous. M. *Vaillant* affirms it to be pentapetalous. *Martyn's Tournefort*.

ALSIRACOSTUM, the Name of a Compound Medicine in *Mesne*, which he recommends much in Fevers attended with great Heat.

ALTAFOR, Camphire. *Johnson*.

ALTAMBUS. *Rulandus* explains this *Lapis rubens*, that is, Human Blood.

ALTANUS, the South-West Wind. *Rulandus*.

ALTARIS, ALTARIT, or ALOZET, Quicksilver. *Rulandus*.

ALTERANTIA, Alteratives. Thus Medicines are called which induce a Change in the Blood and Juices for the better, without any manifest Operation or Evacuation. Alteratives, therefore, must generally be either such Remedies as destroy some prevailing Acrimony in the *Primæ Viæ*, or in the Juices; or else such as resolve Concretions in the Blood-vessels, and dispose them, when thus resolved, to pass out of the Body by Perspiration, or some of the least remarkable Evacuations.

Hoffman has given us a Dissertation on Alteratives, which I shall insert, as it seems worthy of Perusal.

Since almost the whole Duty of a Physician consists in seasonably administering such Things as are proper to preserve or restore Health, and are effectual to relieve the Sufferings of his Patient; and, at the same time, in artfully avoiding, whatever may be unwholesome or prejudicial; it is plain, that nothing is so necessary to accomplish these Purposes, to a desirable Degree of Perfection, as a distinct and accurate Knowledge of the Instruments by which Health is preserved or restored: Now this Knowledge supposes not only an Acquaintance with their Efficacy and Virtues, but also with their Elements, and Manner of Operation; by which means a Physician may be enabled to judge, by solid Reason, what are the Things, in all the *Materia Medica*, which are serviceable or prejudicial, in this or that Distemper, to this or that particular Person, at such or such a Season, with a due Regard to all other Circumstances. That he may rightly conduct himself in these Affairs, and be ready furnished with proper Means to answer all Emergencies; nothing seems fitter, and more conducive to the Purpose, than an artful and compendious Distribution of all the *Materia Medica*, under certain Heads, according to their Principles, their Way of Operation, and the Effects which, under such and such Conditions, they are qualified to produce.

There are, indeed, many Catalogues and Synopses of Medicine, and some of them composed by learned Men; but, if it be allowed to speak the Truth, most of them are huddled together in such a manner, as to be rather an Obstacle than Furtherance to solid and rational Pharmacy, and can scarce be perused, by Men of Skill and Experience in the Art, without Indignation. There you shall meet with many needfuls, and almost innumerable Classes of Remedies; as I myself, not long since, in a Medley of this kind, reckoned no less than fifty, which the Author diversified, with respect to the Parts affected, the Diseases for which they were proper, and their internal as well as external Effects. And these very Heads, or Classes, are so diffuse, and crowded with such a Variety of Medicines, of a different and manifestly contrary Nature, that whoever shall confide in them so far as to depend upon them, without making a new and accurate Distinction, in the Preparation of his Remedies, must, of Necessity, fall into great Confusion and Mistakes.

Wherefore it is my Opinion, that Medicines may be disposed under their general Heads in a far more proper and compendious Way; if we consider, that whatever is subservient to the Ends of Medicine, is directed in its manner of acting towards the Removal of the Causes of Diseases. But in every Disease there is a Depravation, either in the Motion, or in the Matter which is moved, or even disposes to move: And since Motion is excessive or defective, either in the whole Body, or some Part of it; and Matter is in the Fault, either upon account of its Quantity or Quality; all Remedies must, in general, be concerned in the Regulation of depraved Matter or Motion. To Matter vitiated in Quality, we appropriate Alteratives; to Matter offending in Quantity, Evacuants; if, on the other hand, the Motion is defective or impaired, or if the Parts have lost their proper Tone, restorative and corroborative Medicines are to be used; and if the Motion is too intense and accelerated, or the Parts racked with Spasms, then, and in that Case, sedative and composing Medicines are, of all others, most efficaciously administered.

These are the four general Classes of Medicines, to which all the Stores, with which bountiful and indulgent Nature has enriched the Art of Physic, may be reduced; for, by this means, and by the Assistance of these Helps, all the several Intentions of the medicinal Art may be exactly and effectually answered; so that *Hippocrates* has given a Definition of Physic, which is, at once, beautiful and truly mechanical, when he says, That it is no more than an Addition and Subtraction seasonably made; a Subtraction of those Things which exceed, and an Addition of those Things which are defective: He who best can do these two Things, is deservedly esteemed the best Physician; and the less a Man is qualified for carrying on these two Designs, the more ignorant he is of the true and genuine Principles of Physic. De Flatibus, Lib. 3.

Then as to what relates to the Influence and Operation of Medicines, they act directly and immediately either upon the fluid or the solid Parts of the Body; so that alterative and evacuating Medicines are appropriated to the Fluids, and those of a corroborative and composing Quality to the Solids. But as liquid as well as solid Bodies, are of different Qualities, so they produce their respective Effects in different Ways; for some Medicines, by their immediate Action, affect that most subtle and easily moveable Fluid which is lodged in the Brain and Nerves, and is the chief Instrument of Motion and Sensation, either by augmenting its Quantity, or accelerating its Motion; such as analeptic, cordial, and sweet-scented Medicines; or by quelling and becalming its more violent Motions; such as antihysterical and anodyne Medicines, Opiates, and Pætida; which, even when exhibited in very inconsiderable Doses, produce very sudden, and almost instantaneous Effects. Other Medicines operate

operate immediately upon the Blood and Juices themselves; such as those of the diluting, increffating, and attenuating Kind; and also, such as are endowed with an absorbent Quality, or are calculated for subduing any corrosive or sulphureous Acrimony.

Those Medicines which induce a Change upon the Solids, produce their immediate Effects upon the more nervous Parts; such as the Stomach and Intestines, which are endowed with a most exquisite Sensation. To this Class belong all the medicinal Preparations of Minerals, which produce their Effects when given in small Doses, resolve themselves into Particles of an incredibly small Size, without losing their Texture and Virtues, enter the minutest Recesses of the nervous Parts, and are with some Difficulty washed away: Such as, among Emetics, Emetic Tartar; among salivating Medicines, White Precipitate; among Sulphurs, the Sulphur of Antimony, prepared in my Method, to which volatile Salts may be added: Other Substances strongly stimulate the nervous Parts, by that subtle caustic Salt with which they abound; such as, among Poisons, Arsenic; among Purgatives, White and Black Hellebore, Gamboge, Root of Jalap, and some more of the same Kind, together with all Insects, especially Cantharides. 'Tis nevertheless to be observed, that of Medicines of this Kind, some affect particular nervous Parts more than others; for Instance, Mercurial Preparations affect the Glands, the Lymphatic Duets, and the Jaws themselves; Emetic Preparations of Antimony affect the Biliary Duets; Preparations of Colocynth, the nervous Coats of the Intestines; Hellebore, the Oesophagus, Larynx, and Aspera Arteria; Cantharides, and other Insects, the nervous, urinary, and femoral Duets; and, in fine, oily volatile Salts and Sudorifics, prepared of the volatile Salts of Animals, affect the Coats of the Arterial Vessels. Some others of those Medicines, that are appropriated to the Solids, insinuate their Virtues more effectually into the muscular and fibrous, than into the nervous and membranous Parts; among the Number of which are all those Corroboratives, which either abound with a sulphureous, or with a mild astringent, fixed, and earthy Principle.

The whole Body of Medicines in general, is, with Reason, distinguished in this Manner; and in this Manner are we to form our Ideas of their respective Methods of acting, and Manner of operating. I now come to treat of each Class in particular: But as the Art of Physic, in order to become rational, must be built upon most evident Causes, all obscure ones being rejected, as *Celsus* says, not only by the Physician, but also from the Art of Physic itself; so that particular Branch of Physic which displays the Virtues of Medicines, and accounts for their Methods of Operation, is, in my Opinion, to be drawn not from obscure and too remote Causes, nor from the atomical and geometrical Principles of the Magnitude and Figure of the Parts, which are in reality incomprehensible; but from Causes that are evident, immediate, comprehensible, subjected to our Senses, and made known by Experience. This Method I shall at present follow, and in my Explication of the Virtues and Powers of Medicines, proceed in a Method that is plain, simple, and easy to be conceived; but, forbearing to enumerate all the several Species belonging to each Class, I shall only touch upon the select ones, such as by their Worth have highly recommended themselves to Mankind, and, as clearly as I can, explain their Uses, and Methods of operating. I shall begin with Alteratives, which make up the first Class of Medicines, and are principally employed in correcting Matter that is faulty in point of Quality: But because the Matter to be corrected in Diseases may be faulty in different respects, so 'tis plain, that there must be various Species of Alteratives, adapted to the various Defects of the offending Matter. For Instance: If the Juices of a human Body, which, in their natural State, are benign, mild, and balsamic, should either acquire a salino-acid, and corrosive Quality, or assume a hot, subtle, sulphureous Intemperies, or become thick, viscid, and tenacious, or over-acid and corrosive; I say, in such an Instance, Alteratives of four different Kinds ought to be administered: That is, Absorbents for imbibing and blunting the Acid; temperating Medicines for checking and mitigating the Rage of the bilious Intemperies; penetrating Medicines for dissolving and attenuating the thick and viscid Juices; and, in fine, Demulcents for sheathing and mitigating the burning and corrosive Acrimony.

In the first Kind of Alteratives are included Absorbents; the principal of which are of Sea Substances, as the Mother of Pearl, Cockle-shells, Oyster-shells of all the several Species, Coral, red and white, and the Bones of the Cuttle-fish: Of Animals, the Bones and Horns, whether subjected to boiling, and softened by Evaporation, (which in Pharmacy is styled Philosophically prepared) or burnt in an open Fire, their Teeth and Claws, the Shells of Eggs, the Claws and Eyes of Crabs, the Jaws of Fishes, the animal and fossil Unicorn: Of subterraneous Substances, the *Lapis Specularis*, (or Selenite) Chalk, prepared Crystal, *Osteocolla*, (or the Bonebinder) all Stones calcined and burned, and various Kinds of Boles, Clays, and sealed Earths: Of Metals, the Filings of Steel: Of Chymical

Preparations, all Salts prepared by Incineration, *Cineres clavellati*, (or Pot-ash) Salt of Tartar, fixed Nitre, urinous Spirit of Sal Ammoniac, volatile Sal Ammoniac, the Magnesia alba, Tincture of Salt of Tartar, and of Antimony.

'Tis the Nature and Property of all these Absorbents, that they speedily incorporate with any Acid that falls in their Way, imbibe it, blunt and destroy its corrosive Quality, and are, along with it, changed into a third neutral and inoffensive Body. This Effect is plain, from the Example of our extremely corrosive Spiritus Nitri fumans, from Oil of Vitriol, Sublimated Mercury, Aqua-regia, Aqua-fortis, and other highly caustic Liquors; which, by the Addition of Filings of Iron, the Mixture of an alkaline Salt, or an earthy absorbent Substance, lose the Whole of their acid and corroding Qualities. But although all saline and earthy Alcalies agree in this, that they subdue any Acid, and change it into a third Substance, yet there is this Difference between them, that alkaline or lixivious Salts are quickly and totally dissolved in the Body, not only by any Acid, but likewise by any aqueous Fluid; whereas earthy Substances are not, without Difficulty, entirely dissolved, as is plain in Corals, Filings of Steel, and Quick Lime, which are never thoroughly dissolved by an Acid, especially of the vegetable Kind, but always remain a kind of fixed earthy Substances: And, which is still more, alkaline Salts, besides their absorbent Quality, do, after they have, in a manner, embraced the Acid, acquire a new and additional medicinal Virtue, which is, that of attenuating and colliquating the viscid, slimy, and tenacious Juices: They are likewise gently stimulating, and either open the Belly, or promote a Discharge by Urine, or even by Perspiration; and are, besides, attended with this Advantage, that they quickly pass through the excretory Duets. But many other alkaline Substances, instead of being calculated to quicken and forward the Secretions, rather prove astringent by their Effects, which is usually the Case with Filings of Steel, Corals, Boles, and sealed Earths.

1. Since then, as earthy Alcalies are not dissolved but by an Acid, we ought to be cautious in exhibiting them in Disorders where the first Organs of Digestion, the Scene where Absorbents produce their principal Effects, are loaded with any Collection of crude and viscid Juices, lest they should adhere to them undissolved, and so oppress the Stomach, destroy the Appetite and Digestion, and render the Belly more costive, as has sometimes happened in Fevers of the burning, bilious, and hectic Kind, which were attended with a Decay of the Peristaltic Motion, and of the constrictory or retentive Force of the Stomach.

2. On the other hand, because these Absorbents so readily destroy and consume the Acids, and because Acidity is what principally infringes and interferes with the Efficacy of Cathartics and Emetics, they are very usefully, where there is any just Suspicion of the Redundance of an Acid, prescribed before Vomiting and Purging, by way of Digestive.

3. Tho' all earthy Substances absorb and blunt an Acid, yet upon account of their different Natures and Textures, it sometimes happens that they produce very different Effects, and such as are often contrary to the Intention of the Prescriber; 'tis therefore necessary we should be very cautious in our Choice of such as we design to use: When, for Instance, a Physician desires, besides an absorbent Quality, a corroborative and astringent Virtue, marine Substances are chiefly proper for answering his Intention, such as Coral, Oyster-shells, the Shells of Eggs, and the various Species of Earths, or *Marls*, especially such as are generally called *sealed*. If he desires a gentler Astringent, Mother of Pearl, and Shells, best answer his Intention; and if a Flux of the Seminal Matter is to be restrained, the Bones of the Cuttle-fish are peculiarly proper for that Purpose. When, by Absorbents, a laxative Effect is, at the same time, to be produced: The Magnesia alba, duly prepared of a Lixivium of Nitre, and which is nothing else but a fine Flower of Quicklime, is to be administered, which, being entirely dissolved by an Acid, is changed into a bitter Salt of a middle Nature, which occasions a speedy Discharge of the Forces; for this Reason 'tis of singular Efficacy in hypochondriacal Cases; and when the first Organs of Digestion abound with acid Juices, or when the Belly is costive, when the Effects of diuretic Medicines are to be produced by Absorbents, the Claws and Eyes of Crabs, Shells, or Coral, calcined, and *Osteocolla*, (or Bonebinder) are in that Case most efficacious. For procuring a free and plentiful Perspiration in any Disease, the Bones of Animals burned, and philosophically prepared, are, of all other Medicines, the best calculated and most effectual: And, in fine, for resolving the stagnating and condensed Humours, and the Blood itself, when coagulated, nothing is more proper than our common domestic Medicine, which consists of the Eyes of Crabs dissolved in Vinegar, and drunk.

4. Tho' absorbent Medicines are very simple, and, generally speaking, very easily prepared, yet their Virtues and Efficacies are almost superior to those of all others; nor can they be sufficiently commended; for none of all the Tribe of Alteratives are endowed with such a Power of speedily subduing the bad Qualities

lities of noxious Juices; nor are any of them so safe and innocent as Absorbents, where not used to Excess. Add to this, that the Body is very subject to be affected by an Acid, especially in those whose Bile is deficient; such as Women and old Men, those who lead a sedentary Life; or drink freely of Liquors abounding with an Acid; and in many Disorders, especially those of the melancholic and hypochondriacal Kind, the Quantity of Acid in the Body is scarce credible: But Acids, by their coagulating Quality, are hurtful to the human Constitution, obstruct the Circulation of the vital Juices; and lay too sure a Foundation for very terrible Disorders, especially of the chronical Kind. 'Tis therefore evident, that Absorbents are endowed with singular Virtues, and accommodated to a great Number of Diseases; but they were very sparingly used by the Antients, and only brought into Credit by *Helmont* and *Takenius*, and their two Followers in *Holland*, *Sylvius* and *Bonleke*, who assigned an Acid as the Cause of many Diseases, and prescribed Absorbents for their Cure.

The second Class of Alteratives comprehends those Medicines which are of a lenient and tempering Quality, such as check the hot intestine Motion of the sulphureous Particles of the Blood, and qualify, subdue, and cool the scorching, hot, and bilious Humours in the Intestines themselves. Of Vegetables, the Principal of this Kind are, the Root and Herb of Sorrel, Wood-forrel, Citrons, Oranges, *China* Oranges, Pomgranates, Strawberries, Barberries, Raspberries, Cherries, and the Juices of them prepared; and likewise Syrups, and Water distilled from these; add to these the four great cold Seeds, and Decoctions of Oats. Of Animals, Whey, Butter-milk, the Juice of Craw-fish, a Decoction of Tortoises, thin Decoctions of the Shavings of Hartshorn, and Vipers-grafs, with or without Barley, Jellies of Hartshorn, and Water distilled from the Shavings of Hartshorn. Of the mineral Tribe, well-purified Nitre is the best and most efficacious, and becomes still better, if restored from Aqua-fortis to its former State, by the Addition of Salt of Tartar. Of chymical Preparations, the essential Salt of Wood-forrel, Cream of Tartar, Phlegm of Vitriol, sulphurated Quintessence of Antimony, (*Clyffus Antimonij sulphuratus*) Tinctures of Roses, Daisy Flowers, and Violets, philosophically prepared, with Spirit of Vitriol, are good tempering Medicines.

Tempering Medicines act in three several Manners; for they either, by their acid Salts, bind up the volatile sulphureous Particles, and, by fixing and coagulating them, lessen in some measure their intestine and gyratory Motions; or they operate by an expansive and aëro-elastic Quality, such as that which is inherent to Nitre, which, consisting of an acid and alkaline Salt, contains great Store of sulphureous Particles, and also of a subtle aëro-æthereal Fluid, by means of which it dispels the hot Matter, whilst in a gyratory Motion, and forces it, as it were, from the Centre to the Circumference; by its neutral Salt attenuates, dissolves, and separates the viscid Matter, which is the Matrix of Heat and Sulphur, and, at the same time, by its subtle Acid retards the accelerated Motion of the sulphureous Parts: Or, in the last Place, they restore the Moisture consumed by the Heat, by their diluting and dissolving the sulphureous Parts, and, at the same time, lessen the too great Elasticity of the Vessels, upon which the Heat, in a great measure, depends; as is observable in the Use of watery Liquors, Whey, Decoctions of Hartshorn, and of Oats.

1. These tempering and qualifying Medicines are of great Use in Physic, where-ever a preternatural Heat is to be extinguished; and therefore cannot be wanted in Fevers of all kinds, Inflammations, Spasms, and grievous Pains, which are almost always occasioned by too great, or too hot, a Commotion of the Blood: But nitrous Preparations are deservedly to be preferred to Acids, which fix and coagulate; for Nitre is not only cooling, but antispasmodic, and relaxes the Rigidity of the Parts; it, in like manner, promotes the Discharges by Urine and Stool. Besides, as other cooling and acid Fluids condense and coagulate, and as Nitre rather colligates, rarifies, and attenuates thick and viscid Humours, so when sprinkled either in Powder, or dissolved in Water, upon black coagulated Blood, it renders it more florid: For this Reason, Nitre is not only preferable to Acids in Inflammations, and even in inflammatory Fevers, which arise from a black, coagulated, and pent-up Blood, but is likewise a noble and efficacious Preservative against Inflammations; because it effectually fuses and dissolves the viscid Serum, which is to be observed in the Blood of those who are subject to Inflammations.

2. In chronical Fevers, such as those of the slow and hectic Kind, which, for the most part, owe their Origin to a Defect or Putrefaction in some of the Viscera; and when a Cough, or spitting of Blood, is joined with them, or when the Lungs themselves are faulty, not Acids, but nitrous and diluting Remedies, especially such as are taken from the Animal Kingdom, are to be used; such as Whey, the Water, the Decoction, and the Jelly of Hartshorn. When also a feverish Heat accompanies Diarrhœas, Dysenteric, or a Cholera-Morbus, cooling Acids are to be abstained from, and diluting, gelatinous, and mucilaginous Medicines.

dicines, and temperating and absorbing Powders, with the Addition of a Grain or two of Nitre, are to be used.

In the third Class of Alteratives, are comprehended inciding and attenuating Medicines; among which may be reckoned the Roots of White Burnet, Dragons, Sweet Flag, Asarabacca, Wild Radish, Elecampane, Succory, Florentine Iris, Solomon's Seal, Swallow Wort; the Herbs, Leopard's Bane, Brooklime, Scurvy-grafs, Water Cresses, and *Indian* Cresses, Dittander, Rosa Solis, Fumitory, Buck-bean, the lesser Centaury, Hyssop, Germaner, Chervil, Carduus Benedictus, lesser House-leek, the several Species of Garlick, Leeks and Onions, Guajacum Wood, and its Bark; the Spices Pepper and Ginger; the Seeds of Mustard, Scurvy-grafs, and Water Cresses; the Gums Ammoniacum, Galbanum, Sagapenum, Opopanax, Myrrh, Benjamin; of chymical Preparations, Mercurius dulcis, *Æthiops* Mineral, Flowers of Sulphur, fixed alkaline Salts of Vegetables reduced to Ashes, especially Salt of Tartar, and of Wormwood; also neutral Salts, as the Digestive of *Sylvius*, my opening Salt, Salt of Ammoniac, Sal Polychrestum, Epsom Salt, Sedlitz Salt, vitriolated Tartar, Terra solata Tartari, called also Tartarus Regeneratus, Arcanum Duplicatum, a Solution of Crabs Eyes, Nitre, and Sal Ammoniac. Volatiles, as volatile Sal Ammoniac, vinous Spirit of Sal Ammoniac, and Oxy-mel of Squills, acrid Tincture of Antimony, Essence of Gum Ammoniac and of *Indian* Pepper, Resin of Guajacum, Syrup of Tobacco, of Hedge-mustard, Fæcula of Arum, &c. Medicinal Waters also, which, besides their diluting and opening Virtue, are possessed of an attenuating and inciding Quality, such as the Waters of *Egra*, *Sedlitz*, and the *Caroline* Baths. As also, Infusions in Form of Tea, which, by their great Store of an aqueous Element, exert their Virtues, disjoin the coalescent Globules; and, lastly, sweet Whey, which, on account of the sweet and subtle Salt it contains, is deterfive, and opens the excretory Duets.

Of these some act upon the fluid, and others upon the solid Parts of the Body: Those which affect the Fluids by immediate Contact, are very few in Number, and these either consist of aqueous Diluters, which are very efficacious for fusing the glutinous and viscid Juices, or of alkaline, fixed, and volatile Salts, and nitrous Salts; which, when mixed, especially in a liquid Form, with thick and coagulated Blood and Humours, liquify and attenuate them in such a manner, as even to be perceptible to the Eye. All the rest operate upon the Solids, by augmenting their Tone, their Strength, and contractile Force, and by adding to the elastic Powers of the Vessels, by which means they strongly press and agitate the contained Juices, accelerate their progressive and intestine Motions, and, forcibly and frequently propelling them through the Capillary Vessels, divide and disjoin the viscid Juices into small Globules, upon which Fluidity depends. This Action upon the Solids is, in some Medicines, performed by a fixed acrid Salt; as the Root of Arum, White Burnet, Asarabacca, Florentine Iris, Solomon's Seal; the Herbs, German Leopard's-bane, Dittander, Rosa Solis, and Pepper and Ginger, which are, indeed, of an acrid Smell; but being distilled with Water, by an Alembic, neither yield a volatile acrid Oil, nor a Water of an acrid Taste, which is a sufficient Proof, that they are of a fixed Nature. Other Medicines, again, produce their Effects by an acid, subtle and volatile Salt; such as Wild Radish, Elecampane, Water Cresses, Scurvy-grafs, Mustard, and all Kinds of Onions, Garlicks, and Leeks. Some act by their stimulating neutral Salts, of which Kind are those Salts whose Acrimony, and irritating Quality, are not only discoverable by their Taste, but by their Effects; for which Reason, when exhibited in large Doses, they open the Belly, and prove diuretic. Others produce their Effects by an acrid Salt, which contains many sulphureous Particles, as is obvious in Gum Ammoniac, Sagapenum, Opopanax, Guajacum, and its Resin, which, besides their acrid Salt, contain an Oil, which, upon Distillation, they yield in Abundance. Lastly, some Medicines perform their Work by a penetrating, subtle, and metallic Salt, as Mercury, especially Mercurius Dulcis, and *Æthiops* Mineral.

1. The Virtues of attenuating and inciding Medicines are so extensive, that, on account of the great Variety of their Effects, they are usually ranged under different Denominations; for when tenacious viscid Humours not only stagnate in the Cavities of the Vessels, but stuff up and obstruct the small Tubes of the Intestines and Emunctories, these Medicines, by their inciding and attenuating Quality, disengage the impacted Humours, remove the Obstructions, and may, for that Reason, be called Aperients, since they produce the same Effect. They also deserve the Name of Anti-scorbutics, and Purifiers of the Blood; for since the Purity, and good State, of the animal Juices depend, upon the due Secretion and Excretion of superfluous and recrementitious Matter, and since Secretion and Excretion cannot be carried on, if the small Canals of the Glands and Emunctories are blocked up by viscid and tenacious Humours, 'tis therefore plain, that those Medicines that are endowed with a Power of inciding viscid Juices, and removing Obstructions, must not only be Purifiers of the Blood, but also Preservatives

Preservatives against the Scurvy, in which the Juices are of a bad Quality, and loaded with various heterogeneous, viscid, salt, sulphureous, and sharp Particles. Since attenuating Medicines produce so different Effects, the Physician ought to know what particular Attenuants are best adapted to particular given Cases.

2. In Disorders therefore of the Stomach, and first Organs of Digestion, for inciding and attenuating viscid Crudities, the following Medicines are excellently calculated. The Root of Arum, of White Burnet, and of Calamus Aromaticus, Pepper, Ginger, purified Sal Ammoniac, vitriolated Tartar, Arcanum Duplicitatum, the digestive Salt of *Sylvius*, my aperitive Salt, Salt of Wormwood, Spirit of Salt, simple or dulcified, and *Machius*'s aperitive Tincture; and if crude and ill-concocted Juices are to be evacuated by way of Excrement, the neutral Salts are preferable, especially the Sedlitz, the Polychrest, and the Epsom Salt, taken in large Doses, and drank in a sufficient Quantity of some aqueous Vehicle.

3. In Disorders of the Breast, when viscid Humours are to be attenuated, and thrown up by spitting, the most effectual are the Roots of Elecampane, and of the Florentine Iris, Rosa Solis, Hyssop, Germander, Maiden-hair, Gum Ammoniac, Myrrh, Benjamin, Sulphur, Balsam of Peru, Nitrum Antimoniatum, Terra foliata Tartari, Oxymel of Squills, Solution of Crabs Eyes in distilled Vinegar, Syrup of Tobacco, and that of Hedge-mustard.

4. When the Blood is tainted with any thick tenacious Impurity, and by that means the Emunctories are clogged, and the Humours polluted and vitiated by a salt, sulphureous, and scorbutic Dyserasy, the Medicines chiefly in Use, in that Case, are, the Wild Radish Root, Garden Scurvy-grass, Water Cresses, *Indian* Cresses, Dittander, Brook-lime, the lesser Centaury, Marsh Trefoil, Cardus Benedictus, Fumitory, the smaller House-leek, Mustard, Gum Ammoniac, Sagapenum, Myrrh, Oil of fixed Nitre, Oil of Tartar per Deliquium, a Solution of Nitre, my Elixir temperatum, Tincture of Antimony, the Essence of the Woods, Spirit of Sal Ammoniac, Salt of Wormwood, with Citron Juice; and of medicinal Waters, those of *Sedlitz* and of *Egra*.

5. When grumous Blood, occasioned by Contusions, Blows, or Suffusions, is to be dissolved and fused, the Medicines most to be commended, in this Case, are Solomon's Seal, German Leopard's-bane, Chervil, Vinegar distilled with Crabs Eyes, Terra foliata Tartari, and antimoniated Nitre.

6. In Diseases where the Lymph is become thick, especially from a Venereal Taint, the principal, and most efficacious, are Guaiacum, Sopewort, acrid Tincture of Antimony, Mercurius dulcis, and *Aethiops* Mineral, which, if prudently used, is of uncommon Efficacy for colliquating and resolving the viscid Humours lodged in the Glands and Liver.

I come now to the fourth and last Class of Alteratives, which comprehends the emollient and softening Medicines, of which the chief are, the Roots of Marsh Mallow, of White Lilies, of Liquorice, and of Vipers Grass, the five emollient Herbs; Lettice, Bear's Breech, Pellitory of the Wall, the Flowers of Elder, of Melilot, of Mallows, of Mullein, of Yarrow, of Chamomile, of White Lilies, of Borage, of the Wild Poppy, of the Lime Tree, of the *Egyptian* Thorn, of Violets, and, most of all, Saffron; the Seeds of Flax, (Linseed) of Fenugreek, of Anise, of Quinces, of Flea-bane, of White Poppies, the four greater and lesser cold Seeds, the Siliqua, Sweet Almonds, Figs, Pine Nuts, Pistaches, Cherry-tree Gum, Gum Arabic, Gum Tragacanth, Shavings and Jelly of Hartshorn, Human Grease, that of a Dog, of a Capon, the Marrows of their Bones, the Fat about their Omentum, Bones, and Mesentery; the native Oils of Animals, fresh Butter, Cream, Milk itself, Crystals of Milk, Sperma Ceti, Honey, the Yolk of an Egg, and its White dried, and reduced to a Powder: Of prepared Medicines, Oil of Sweet Almonds, Linseed Oil, Rape Oil, Oil of the Male Balsam Apple, Decoctions of Hartshorn, and Vipers Grass, mixed with the Juice of Citrons, the Ptisan, Sweet Whey, *Fernelius*'s Syrup of Marsh Mallows, Ointment of Marsh Mallows, simple Diachylon Plaster, that of Melilot, and that of Frog's Spawn.

The Virtues of these Medicines are two-fold, the one appropriated to the Solids, the other to the Fluids. In the Solids they relax, soften, and render moveable the hard, stiff and tense Fibres; and, at the same time, enlarge and dilate the Channels of the small constricted Vessels. But in the Fluids, they, by their viscid Mucilage, bind up, involve, and, as it were, inclose in a Sheath, the piercing Points of the sharp corroding Salts, and by that means prove excellent lenitive Medicines; and, when externally applied, they convert into a laudable Pus any Collection of extravasated Humours, which cannot be resolved, or taken into the resluent Mass by the lymphatic Vessels; so that having, by their moderate Warmth, dissipated the most subtle Part of the extravasated Humour, the remaining viscous Matter is happily disposed to mature; the Pores being now gently blocked up, lest too much Moisture should be exhaled, and the

nutritious Juice, of which Pus chiefly consists, being excited to flow more plentifully through the small relaxed Tubes.

1. These lenitive Medicines are of incredible Efficacy, if any one has had the Misfortune to take a caustic Poison; and scarce can more powerful Antidotes than these be used for checking and subduing the Virulence of animal and vegetable Poisons, especially if abundance of Milk and oily Liquors are used as their Vehicles; because these not only sheath up and blunt the sharp Points of the Poison, but also relax the Membranes, contracted and rendered subject to Spasms by the violent Shocks of the Poison; and, by these means, they always promote the Evacuation of Poisons either by Vomit, or by Stool.

2. In long and violent Distempers, especially such as arise from an Acrimony of the Humours, and which prey upon the Nerves, Infusions and Decoctions of these emollient Medicines are of singular Advantage; at least, I have often known Convulsions, attended with Madness, scorbutic Contractions of the Joints, and intolerable Gripes of the Belly, cured with Decoctions of Piony Root, Marsh-mallows, Mallows, Pellitory of the Wall, Bear's Breech, Flowers of Mullein, of White Lilies, of Elder, of Borage, of Chamomile, and Wild Poppy, and by Figs and Fennel Seed, prepared with Water or Whey; but they are to be used in large Quantities, and for a long Time, with the Addition, now-and-then, of a Spoonful or two of Oil of Sweet Almonds, sometimes bathing in fresh Water mixed with Milk.

3. Fresh Fat and Grease of Animals, especially the Marrow of the Bones, which abounds with a very subtle Oil, are used internally with Success, in a sharp scorbutic Disposition of the Humours.

4. In a Dryness of the Parts, and when the Joints can scarce move without making a Noise, and in arthritic Pains, these emollient Medicines (that is, the Root of Viper's Grass, Elder Flowers, Yarrow, Chamomile, the four greater cold Seeds, but especially sweet Whey, as yet full of the fat little Particles of the Cream, or even fat Substances, reduced to the Texture of Sope, with some Alkali) produce wonderful Effects; but these fat Substances are to be used when the Stomach is empty, and not in large, but in frequent Doses, drinking some suitable warm Draught after them.

5. In Exulcerations of the Kidneys, and Discharges of bloody Urine, which sometimes happen in the Small-pox, on account of the Acrimony of the Humours, Cherry-tree Gum, or even Tragacanth, or the dried White of an Egg, dissolved in Whey, are of singular Use: But in Disorders of the Breast, for blunting the Acrimony, which is the Cause of the Cough, and disposing the Matter for Expectoration, the following Medicines are excellently calculated; Decoction of Oats, Sperma Ceti, Liquorice, Oil of Sweet Almonds, the Siliqua, Saccharum Lactis, Saffron, Figs, Syrup of Violets, and Flowers of Poppy and Elder.

6. In continual hectic Heats, and if the sweet Juices, by a continued slow Fever, acquire a saltish alkaline Acrimony, Cream and new Butter, on account of their demulcent Qualities, are found to produce excellent Effects.

7. In a Cholera-Morbus also, and in a Dysentery, a Scurvy, a scorbutic Decay, a Consumption, and, in general, wherever the Acrimony of the Humours gives Rise to the Disease, gelatinous Decoctions of Flesh, of Bones, and especially of Hartshorn, Calves Feet, and Sheeps Feet, are of singular Efficacy and Advantage, as well used internally by way of Drink, as injected by way of Clyster.

8. When the Intestines are violently contracted, and the Excrements pent up by Flatulencies, emollient demulcent Medicines, such as Oil of Sweet Almonds, Whey, Decoction of Oats and Hartshorn, produce very great Effects; but should rather be injected by way of Clyster, than taken by the Mouth.

9. Emollient Flowers and Herbs, if boiled with a small Quantity of Saffron, inclosed in a Bladder, and externally applied over the internal Part affected, procure almost incredible Ease and Relief, as may be experienced in a Pleurisy, an Inflammation of the Liver, a Colic, or when the Anus suffers by the blind Hemorrhoids.

10. When any extravasated and impacted Humour is to be converted into Pus, no Applications can be more properly used than Liniments and Cataplasms, made of emollient Fats, and Milk; but especially of the Flowers and Leaves of White Lilies, Saffron, Figs, roasted Onions, Bean-meal, Yolks of Eggs, and Honey: But these are not to be used when the Matter is contained in harden'd and scirrhous Parts, where it cannot be converted into Pus, unless we incline to bring on a fatal Putrefaction.

11. Mucilages made of the Seeds of Quinces, and Flea-bane, with Rose Water, or Frog's Spawn Water, often afford immediate Relief in excoriated and exulcerated Parts, attended with Heat and Pain; such as the ulcerated Aphthæ in the Mouth, blind and painful Hemorrhoids, a Tenetismus, Dysenteria, Gonorrhæa, or a corroding Fluor Albus.

ALTERCUM,

ALTERCUM, or **ALTERCANGENON**. The same with **HYOSCYAMUS**, which see.

ALTEY PLUMBI, or **ALKY PLUMBI**, (*materia dulcis ex Plumbo*) a sweet Preparation from Lead. Perhaps *Saccharum Saturni*. *Rulandus* and *Johnson*.

ALTHÆA. A Plant much used as an Emollient. It is thus distinguished.

Althæa, Bismalva, Ibiscus, Offic. *Althæa Dioscoridis*, Breyn. Prod. 2. 12. *Althæa Dioscoridis* & *Plinii*, C. B. Pin. 315. Dill. Cat. Giff. 144. Tourn. Inst. 97. Elem. Bot. 82. Boerh. Ind. A. 269. *Althæa vulgaris*, Park. Theat. 303. Raii Hist. 1. 602. Synop. 3. 252. *Althæa, Ibiscus*, Ger. 787. Emac. 933. Merc. Bot. 1. 19. Phyt. Brit. 6. Mer. Pin. 6. *Althæa five Bismalva*, J. B. 2. 954. Chab. 301. *Malva Bismalva Officinarum dicta*, Volck. 272. *Malva sylvestris, aut palustris, aut Ibiscus*, Hist. Oxon. 2. 523. *Malva palustris mollis* & *incana* P. Herman. Buxb. 207. Rupp. Flor. Jen. 12. **MARSH-MALLOW**. *Dale*.

The Roots of Marsh-mallows are pretty large, thick, woody and tough, and much branched, of a yellowish Colour on the Out-side, and whitish within, slimy and mucilaginous. The Stalks grow to be above a Yard high, soft and downy; the Leaves are covered with a soft Pile like Velvet, of a yellowish-green Colour, more angular, longer, and sharper pointed than the common Mallows. The Flowers are also like the common in Shape, but less, of a paler red Colour, and without the deeper coloured Veins; and when they are fallen, come the like Seeds, set together in a Round, like Cheeses. It grows in salt Marshes, and maritime Places, flowering in July.

The Root and Leaves, and sometimes the Seed, are used.

They are mollifying, digesting, and soupling, of great Use in the Strangury, Gravel, and Stone; in Heat and Acrimony of Urine; against sharp, corroding Humours in the Stomach and Guts, which sometimes excoriate them, and cause Dysenteries.

They are likewise balsamic and pectoral, good to help a Cough, Hoarseness, and Soreness of the *Aspera Arteria*. They are frequently ordered in Clysters for the Stone, and in Cataplasms and Fomentations against Swellings and Inflammations, and to ease Pain; as also to suppurate and ripen Tumours and Imposthumes.

Officinal Preparations, which take their Name from Marsh-mallows, are, *Syrupus de Althæa*; *Pulvis de Althæa*; and, *Unguentum de Althæa*. *Miller. Bot. Off.*

Lemery adds, it is lenient and aperitive, proper for the Diseases of the Kidneys, for the acrimonious Humours which affect the Breast, and for the Nephritic Colic. *Lemery de Drogues*.

It is found with Leaves more or less pointed; they appear a little too much so in the Figures of *Podonæus*, *Clusius*, and *Lobel*. *Matthioli*, *Fuchsius*, and *Tabernemontanus*, have engraved it with rounder Leaves; and it is, in all Appearance, this last Species which the learned Mr. *Sutherland*, Professor of Botany at *Edinburgh*, has named *Althæa folio rotundiori, five minus acuminata*. The Leaves of the Marsh-mallow are sometimes, indeed, more or less singular. *M. Herman* has called that with the angular Leaves *Malva sylvestris, aut palustris, aut Ibiscus folio anguliflori*. *Cordus*, *J. Bauhin*, *Morison*, and Mr. *Ray*, have taken the Flower of this Plant to be pentapetalous, whereas it is really monopetalous.

The Leaves of the Marsh-mallow are glutinous and insipid, and give no Tincture of red to the blue Paper. Its Roots have the same Taste, but they stain it a little.

Its glutinous Juice, which appears to be a Mixture of a great deal of Phlegm, a considerable Quantity of Earth, Acid, and Sulphur, so clogs the acrid Salt, that it cannot discover itself but by the Fire; for it is certain, that by a chymical Analysis, we obtain from the Marsh-mallow a concrete, volatile, and a fixed lixivial Salt. The Acid is a little more disentangled in the Roots, because they give a faint red Colour to the blue Paper: Nevertheless, in all Probability, this Plant operates chiefly by its glutinous Juice, which the Fire entirely destroys. By the Consent of all Authors, it is very lenitive and emollient. By its Mucilage it not only blunts the Points of the corrosive Salts, but, by relaxing the too much distended Fibres, restores them to their natural Tone, and consequently causes the Pain to cease. The Root of the Marsh-mallow is employed in lenitive Ptisans; but it must not be mixed till towards the End, for fear of making it too clammy. These Ptisans are of great Use in a violent Cough, when the Spittle is acrid and saltish. In four Quarts of Water boil four Ounces of the Root of *Nymphaea*, and one Ounce of the Root of Marsh-mallow; strain this Liquor through a Linen Cloth, dissolve in it two Drams of Nitre, Crystal Mineral, or Sal Prunelle; give a good Draught of it in a nephritic Colic, in a Heat and Retention of Urine, attended with a great Inflammation. But when the Inflammation is over, the Marsh-mallows must be omitted, for fear of rendering the Humours too viscid. Boil also three Pugils of Pellitory, and one Ounce of the Roots of Marsh-mallow, in three

Quarts of Water, and strain the Decoction; afterwards add as much Sugar as will bring it to the Consistence of a Syrup, and give it to drink with convenient Ptisans. For great Inflammations in the Abdomen; after necessary Bleedings, make also Fomentations with the Decoction of the Leaves, Flowers, and Roots of Marsh-mallows and Violets, the Seeds of Fenugreek, and the Tops of Chamomile and Melilot, and apply the Forces to the Part affected, in Form of a Cataplasm. These Decoctions make an excellent Semicupium; give them also in Clysters, with two Ounces of Honey of *Nymphaea*. The Syrup of *Althæa*, according to the Description of *M. Charas*, is of great Use: Dog's-grass, Pellitory, Asparagus, and the other Plants mixed with it, sharpen the Marsh-mallow a little, and make the Syrup proper to provoke Urine, and promote Expectoration. It was with this Intention that the Lris of *Florence* was used in the Lozenges of Marsh-mallows. *M. Lemery*, who has made an excellent Choice of the best Compositions, and reformed them with a great deal of Prudence, quickens these Lozenges with the Flowers of Benjamin. These are preferable to those which they call simple Lozenges of Marsh-mallows, for this Plant has need of something to stimulate it. Thus *Quercetan*, very judiciously, has mixed, in his Lohoch of Marsh-mallows, the Flowers of Sulphur, the Powder Diacuos, &c. To render the Ointment of the *Althæa* more resolvent, they have added very properly Fenugreek, Squill, Galbanum; and *M. Lemery* substitutes, not without Reason, the Gum Ammoniac to that of Ivy. The camphorated Spirit of Wine may be mixed also with it, when it is given for the Sciatica and Rheumatism: For the same Reason the Mucilage of Marsh-mallows, made with the Seeds of Fenugreek, is preferable to that which is simple; because it resolves by removing the Inflammation; one ought to put this Seed in the Poultice of Marsh-mallows and Milk, to dissipate or suppurate Tumours, according to the Disposition of the Humour. The Cataplasms prepared with the Roots of this Plant, those of the Lilies and Onions, together with the four Meals, are very good for the same Tumours; especially if the camphorated Spirit of Wine, the Spirit of Sal Ammoniac, or some other spirituous Liquor, is mixed with them. We need not conclude with *M. Seger*, that the Roots of Marsh-mallows are acrid, because several red and painful Pustules have appeared on the Part where this Herb has been applied in Cataplasms. It is more likely, that the obstructed Matter of Transpiration produce these Pustules. *Martyn's Tournefort*.

PULVIS DIALTHÆÆ, Compound Powder of Marsh-mallows.

Take of the dried Marsh-mallow Roots five Drams; of Spanish Liquorice, and Medlar Kernels, each half an Ounce; of Gromwel, Parsley, and Fox-glove, each three Drams; of prepared Crabs Eyes, six Drams; of Gum Arabic, two Drams; of the Gums of the Cherry and Plumb Tree, each one Dram: Let them be pounded together, so as to make a fine Powder.

This continues as the former Dispensatory, and is likewise a modern Composition; but it is seldom prescribed, and therefore little made in the Shops.

SYRUPUS DE ALTHÆA, Syrup of Marsh-mallows.

Take of Marsh-mallow Root two Ounces; of Grass, Asparagus, and Liquorice Roots cleansed, and of Stoned Raisins, each half an Ounce; of the Leaves of Marsh-mallows, common Mallows, Pellitory of the Wall, Saxifrage, Pimpinell, Plantain, and the white and black Hellebore, each one Handful; of red Cicers one Ounce; of the four greater and lesser cold Seeds, each three Drams. Infuse them for a whole Day in six Pints of Water; then boil it to four Pints, to which, when pressed out and strained, add three Pounds and a half of white Sugar, and boil it up to a Syrup in a Bath Heat. *S. A.*

This Syrup is originally ascribed to *Fernelius*, and has remained unaltered in all the College Dispensatories. If it is not boiled up to a good Consistence, it is so apt to ferment in warm Weather, that it is very troublesome to keep. *Quincy's London Dispensatory*.

The *Edinburgh Dispensatory* directs this Syrup somewhat differently.

Take of the Root of Marsh-mallows two Ounces; those of Asparagus, Liquorice, and Grass, of each half an Ounce; the Herb Maiden-hair, an Ounce; the Leaves of Marsh-mallows, Mallows, Pellitory, Pimpinell, Saxifrage, broad-leaved Plantain, and stoned Raisins of the Sun, of each half an Ounce; red Cicers, an Ounce; Spring-water, three Quarts. Boil them together till one Third of the Liquor is evaporated; then strain the Remainder, and add thereto four Pounds of the whitest Sugar, and make a Syrup

Syrup thereof, according to the Rules of Art, by boiling it in Balneo Mariæ.

This Syrup ought to be made of a high Consistence in hot Weather; otherwise it presently runs into Fermentation, and is spoiled in the Capacity of a Syrup. The four greater and four lesser cold Seeds are here dropped by the Compilers, I suppose, as being judged foreign to the Purpose.

UNGUENTUM DIALTHÆÆ, *Ointment of Marsh-mallows.*

Take of fresh Marsh-mallow Roots bruised, two Pounds; of Linseed and Fenugreek Seed, each one Pound: Let them macerate three Days in eight Pints of Water: Then slightly boil them, and press out the Mucilage, of which take two Pints; of Neats-foot Oil four Pounds; and let them boil together, until the more aqueous Part of the Mucilage is consumed; then add of Wax one Pound; of Refin half a Pound; of Turpentine two Ounces: Let them be again boiled into an Ointment. *S. A.*

This is titled by the *Augustane Dispensatory*, *Unguentum de Althæa simplex*, in Distinction from an *Unguentum de Althæa Compositum* there also given, and both taken from *Nicolaus*. The *London Dispensatory* likewise received them both at first; but the greater Composition is very blameable on many Accounts, as may be seen by *Zwelfer's* Animadversions upon it; and therefore hath it been, for some time, justly expunged by our College: In that which is here yet retained, the Neats-foot Oil for common Oil of Olives, always before directed, is indisputably a very good Emendation, because its mucilaginous Quality suits it much better to the Intention of the Medicine. *Zwelfer* tells us, that some put it in Turmeric Root to beautify the Colour, but blames it for being foreign to the true Intention of the Whole; and it is to be wished, that a much greater Fault was not to be found with some Medicine Merchants amongst us, who, to save both Trouble and Charge, put in little or none of the Mucilage, but give their Smell to it by a Mixture of some of the Seeds, with which it ought to be made, in Powder. And this Caution, it is hoped, will not be taken amiss by any honest Compounder; because the Composition is justly designed for some Purposes of Consequence, and which it may fail in by means of such unworthy Practices. *Quincy's London Dispensatory*.

The *Unguentum Dialthææ* of the *Edinburgh Dispensatory* is different, in some respects, from ours.

Take of the Oil of Mucilages, two Pounds; of yellow Wax, half a Pound; of white Refin, three Ounces; and of Venice Turpentine, an Ounce and a half: Mix them together, and make an Ointment, according to Art.

When the Oil of Mucilages is ready prepared, this is a very compendious Way of making the Ointment of Marsh-mallows:

THE OLEUM MUCILAGINUM, *Oil of Mucilages, is prepared as follows.*

Take of fresh Marsh-mallow Root, bruised, four Ounces; the Root of white Lily, and fresh Squill bruised, of each an Ounce; of Fenugreek Seed, and Linseed, each an Ounce and half: Steep the Ingredients in a proper Quantity of Spring-water; and afterwards boil them gently till they make a thick and viscous Mucilage; which being pressed strongly out, add thereto two Quarts of Oil-olive, and boil it over a very gentle Fire, or in Balneo Mariæ, till the aqueous Moisture is evaporated; observing to keep it continually stirring, to prevent its burning.

The keeping this Oil in Readiness, as an Official, will greatly ease the Trouble of making several Medicines, particularly the *Unguent. Dialthææ*, *Emplastr. Diachylon*, *Emplastr. de Mucilaginis*, &c. as we shall see hereafter.

The Compilers of the *Edinburgh Dispensatory* have given another Ointment, called

UNGUENTUM DIALTHÆÆ COMPOSITUM, *Compound Ointment of Marsh-mallows.*

Take of the Ointment of Marsh-mallows, four Ounces; of Gum Ammoniac, dissolved in a proper Quantity of Spring-water, and strained, an Ounce; of Linseed Oil, two Ounces. Melt the Ointment and the Oil together; then add the Solution of the Gum Ammoniac, thickened a little over the Fire, and whilst it yet remains hot; lastly, boil all together, till the aqueous Moisture is consumed, so as to make an Ointment.

This is a judicious Composition, and not chargeable with the Faults committed by others in ordering the Compound Ointment of Marsh-mallows.

ALTHÆA, by some called *IBISCUS*, is a Species of Wild Mallow, with round Leaves like the Cyclamen, (Sow-bread) and covered with Down. It bears a Flower like a Rose; its Stalk is about two Cubits in length, and its Root of a slimy and glutinous Substance. It took the Name of *Althæa* from (*ἄλθος, Remedium*) its manifold and extensive medicinal Virtues. For,

A Decoction of it in Wine, or Hydromel, or the Herb itself bruised, is an effectual Medicine for Wounds, Parotides, Strumæ, Abscesses, Inflammations of the Breasts, Pains about the Anus, Bruises, flatulent Tumours, and Strains of the Nerves, being endued, for these Purposes, with a ripening and discussive, or a breaking and healing Quality. Being boiled, as aforesaid, and worked up with the Fat of a Hog or Goose, or with Turpentine, in the Form of a Pessary, it is a Remedy for Inflammations and Obstructions of the Womb. The Decoction has the same Effect, and also brings away the Lochia. The Decoction of the Root, drank with Wine, relieves those who labour under a Difficulty of Urine, or a tormenting Fit of the Stone, Dysentery, Sciatica, Tremblings, or a Rupture. The Root boiled in Vinegar, for a Gargarism, assuages the Tooth-ach. The Seed, either green or dry, being levigated in Vinegar, cleanses the Skin from an Alphus, if it be anointed therewith in the Sun; and, used with Oxylyzum, prevents the Mischief from the Bites of venomous Creatures. The same is effectual in Dysenteries, Diarrhoeas, and spitting or vomiting of Blood. The said Decoction of the Seed is usually drank with Wine, or Posca, (*ἐξυπαράση*) by those who are stung with Bees, or any other little revengeful Creature, and the Leaves with a little Oil are applied as a Cataplasin to the Hurt; and the same is good in Burns. The Root bruised, and laid in Water, which is left to stand in the open Air, will coagulate the same. *Dioscorides, Lib. 3. Cap. 163.*

Ebiscus, or *Althæa*, digests, relaxes, and mollifies, assuages Inflammations, and maturates stubborn Phymas. The Root and Seed have the same Virtues as the Leaves, but are of finer Parts, and more drying, and appear to be more absterive, in that they deterge the Alphus, and the Seed breaks the Stone in the Kidneys. The Decoction of the Root, by its astringent Quality, cures the Gripes and Diarrhoea, and relieves those who bring up Blood. *Orib. de Virt. Simpl. Lib. 2. Cap. 1. copied by Aëtius, Tetr. 1. Serm. 1.*

The Wild Mallow is gently discussive, and a little mollifying. The Garden Mallow, being of a more aqueous and humid Substance, is by so much the weaker in Virtues. The former easily passes the Stomach, not only on account of its Humidity, but Viscosity, especially when taken with Oil and Garum, mixed with a little Wine, at Meals. The Seed of the Mallow is the more effectual, as it is the drier. The Dendromolache, too, is a Species of the Mallow, but a greater Discussive than the former; it is also called *Althæa*. *Aëtius Tetr. 1. Serm. 1.*

EMPLASTRUM ex Althæa Palletis, *POLLES's Plaster of Althæa.*

Take the Bark of the Root of Althæa, while the Herb is in its best State, and pound it in a Mortar. Then remove it into a Copper or Earthen Pot, and sprinkle it with old White Wine, that is fragrant and astringent, just enough to moisten it. Cover it, and let it stand three Days. Then pound it afresh, and strongly press out the Juice. This done, take of Colophonia twenty-four Ounces; of Wax four Ounces; of Oil and Verdigrease, each two Ounces; of the expressed Juice of the Plant, two Attic Heminas (*a Pint*). The Colophonia being first melted in the Oil, and then strained, boil it over a gentle Fire of Pine Wood, stirring it with a Spatula made of the same, till being dropt into cold Water, it consolidates. Then put in the Wax, and when that is melted, take the Pot off the Fire, and after it is cool, pour in the Juice by little and little, taking care of any Effervescence; for it is subject to Ebullitions, and to overflow the Brim of the Pot. After it has stood a while, remove it to the Fire, and, when it is thoroughly hot, put in the Verdigrease; which done, take it off, and, after it is cool, work it well with your Hands, that the Ingredients may thoroughly unite.

This Plaster is good for old and fresh Ulcers, and for the Bite of a Dog, or a wild Beast. It draws out the virulent Matter of Ulcers. It discusses Pain and Strumæ, or suppurates and breaks them, drawing the peccant Humour to the Superficies, and there causing it to evaporate, as in the Case of Lividness from Blows in the Face. It eases Pains, cleanses the Scabies, and scabby Nails, the Lepra and Alphus, in which Cases it is not to be taken off till the seventh Day. It draws out Stings, or other Matters, fixed in the Flesh; mitigates the Inflammation, under an Exacerbation of the Gout; dissolves Tumours of the Joints and Ganglia; heals the Pavi and Ficus; and cures Infants of the Hydrocephalus; mollifies the Hardness of the Spleen; and is a Lenitive for Cancers that are not ulcerated, and allrains their threatened Erosions. Used as a Pessary, it provokes

provokes the Menfes, and, apply'd to the Pecten, it expels the Stone, helps Difficulty of Urine, and relieves under Costiveness. Diluted with Oil of Roses, it heals Fissures in the Soles of the Feet; and cleanses and incarnates Ulcers of the Testes and Pudenda. Prepared without the Ergo, it restrains phagedenic Ulcers, and is serviceable, instead of an Embrocation, in Fractures, as an Anodyne.

There is also a very useful Medicine prepared of the Flowers, which are like Roses, in the following manner: They take the Flowers, and cutting off the Bottoms of the Leaves, first bruise, and then pulverize them. Of this Powder, they take twelve Parts, of Colophonia twenty-four Parts, of Wax six, and Oil two Parts. Prepare them as directed in the former, and work them well with your Hands. It is more convenient for Use than the former, and a greater Anodyne. *Ætius Tetr. 4. Serm. 3. Cap. 14.*

An emollient Medicine.

Take of Colophonia, Wax, each one Pound; of Oil and Juice of Althæa, each two Pints. *Æturius Meth. Med. Lib. 6. Cap. 9.*

Althæa has been the Occasion, that many have deceiv'd themselves, who presume they know it, and imposed upon others, who are credulous enough to take their Word for it; for when they would persuade us, that Althæa is a common Herb, and known by every body, they prove their Ignorance by so doing, and demonstrate, that they know nothing of the Matter. The Greek Authors, on the contrary, who are to be found in close and select Libraries, assure us, that Althæa is a very scarce Plant, and only to be met with in Asia and Sicily. I shall give you their very Words: *Ἡ μὲν Ἀλθαία ἐρυθρὰ ἐνείσκηται, φουμένῃ ἐν τοῖς τῆς Ἀσίας τόποις ἢ Σικελίας, ἐνείσκηται δὲ ἐν τῇ Σμύρνῃ ἐν τῷ Σχελλίῳ ποταμῷ.* "Althæa is not easily met with. It grows in Asia or Sicily, particularly near Smyrna, by the Banks of the River Schellis." *Theophrastus* also hints, that it was a scarce Herb, when he tells us, that it was to be met with among the Arcadians, who called it *Ἀγρία μαλάχῃ*, "wild Mallows," but the Sons of the Physicians gave it the Name of *Ἀλθαία*, "Althæa," from the medicinal Virtues with which it is endued, *Lib. 9. Cap. 14.* Besides, he describes it by such Characters as they are forced to confess they never saw, namely, with a yellow Flower: *ἔχει δὲ ἡ Ἀλθαία φύλλον μὲν ὁμοίον μαλάχῃ, πλὴν μείζον καὶ δασύτερον, τὰς δὲ καυλὰς μαλακὰς, ἀνθὸς μῆλινον.* "Althæa has a Leaf like the Mallow, but larger and rougher, soft Stalks, and a Flower of a yellow or Honey-like Colour." *Dioscorides* says, it is *ῥοδοειδὲς*, "like a Rose," which we may understand to be meant of the Figure of a Rose, which it may have under a yellow Colour. *Harpocration* in his Book *Περὶ φυσικῶν ὀνύμων*, "Of physical Powers," says, that the Flower of Althæa is called a Rose; whether from its Colour or Shape, is uncertain: *Ὅτι οὐδὲν βέβαιον ἐστίν, ἢν οἱ μὲν ὀνομάζουσιν καλῶσιν, οἱ δὲ ὀνομάζουσιν αὐτὴν ἐστὶ τὸ ῥόδον, ἢ τὰς τεσσάρων πλέκουσιν.* "Ελληνες ἐν ταῖς ἑορταῖς τῶν θεῶν, φύλλα ἔχουσα ὁμοία μαλάχῃς ἡμέρῃ τῶν ἑλλήνων καλῶσιν Ἀλθαίαν." "The *Onobrysis* is an Herb, which some call *Onothure*, others, *Onomolochæ*. It bears Roses, which the Grecians weave into Crowns at the Feasts of their Gods, and has Leaves like the Garden-mallow; this the Greeks call *Althæa*." But it is most reasonable to interpret *ῥοδοειδὲς* [*rhodoeides*] of the Colour. For so *πρασοειδὲς* [*praseoides*] means something of a Leek-green Colour; and *ῥοδοειδὲς*, [*rhodoeides*] apply'd to Metals, signifies a Rose-colour. In his following Description of Althæa, he makes its Flower to be like a Rose: *Ἀνθὸς μικρὸν ἐμπερὶς ῥόδου.* "It has a small Flower like a Rose." Therefore by *ῥοδοειδὲς* he meant the Colour, which an ancient Transcriber of *Dioscorides* expressed by painting the Flower of Althæa of a Rose-colour. If this be so, *Dioscorides* must have spoken of quite a different Plant from the true Althæa; for that bears a yellow Flower. Some, I know not for what Reason, suppose it to be the Abutilon of *Avicenna*; but *Avicenna* says no more of his Abutilon, than that it was a Plant like a Gourd; to which his Arabian Expositors add, that the Abutilon resembled a Gourd not only in Leaves, but also in its Fruit, which is not round, but oblong, and that it was to be found in the City of Gaza. This, you see, is very different from the Althæa of the Greeks. *Dioscorides* says, that "It is called *Ebiscus* by some." Why did he not say by the Romans, as he usually does on other Occasions? For none but the Romans called the Althæa *Ebiscus*, or *Ibiscus*. The old Greek Horse-Physicians, in that Part which is wanting in the Editions: *λέγεται μὲν Ἀλθαία, ὑπὸ τινῶν δὲ Μολόχῃ, Ῥωμαῖσι δὲ Ἐβίσκου, ποτὶ Σαρματαῖς δὲ καὶ Γότταις καὶ Θρηξίν Ἀρισπίς.* "It is called *Althæa*; by some, *Molochæ*; in Latin, *Ebiscus*; by the Sarmatians, Gotes, and Thracians, *Arispis*." *Neophytus*, *Ἀλθαία δὲ Ἀλθίσκου, οἱ δὲ μαλάχῃν ἀρξιαί, Ῥωμαῖσι Ἐβίσκου.* "Althæa is the Althiscum, some call it the Wild Mallow, and the Romans *Ebiscum*." In the Glossary, *Ἀλθαία* is *Hibiscum*; in other Glossaries it is, without an Aspiration, *Ibiscus*, *Herba mollis*; thence comes the Italian *Malvanisco*, for *Malva Ibisco*, for which the French say, *Ibisco-malva*; for thence comes their

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Grimauve, we placing before what the Italians place after. The Barbarians call it *Bismalva*, which is plainly a Corruption of *Ibisco-malva*.

I don't wonder, that *Pliny*, in the Place where he speaks of *Hibiscus*, makes no mention of *Althæa*, nor says any thing of *Hibiscus* when he mentions *Althæa*. 'Tis plain, that he thought them different, as his Manner is in other Cases. But I can't help being surpris'd at his placing *Hibiscus* among the Kinds of Parsnip, and seeming willing to have it be like a Parsnip, and that in more Places than one. In *Lib. 19. Cap. 5.* treating of the Kinds of Parsnips, *Hibiscum a Pastinaca gracilitate distat; damnum in cibis, sed Medicinæ utile est; & quantum Genus in eadem similitudine Pastinacæ, quam Gallicum vocant, Græci vero Daucon.* "Hibiscum differs from a Parsnip on account of its Slenderness: it is condemn'd as Food, but useful in Medicine. And there is a fourth Kind, resembling in like manner a Parsnip, which they call *Gallic Parsnip*, but the Greeks name it *Daucon*." He pretends, that the *Hibiscum* differs from a Parsnip only in Slenderness, that is to say, is more slender than a Parsnip, but like in other respects. This he repeats in another Place, that is, *Lib. 20. Cap. 4.* *Pastinacæ simile Hibiscum, quod Molochen agriam vocant, & aliqui Plistolochiam.* "There is a Resemblance between the Parsnip and the *Hibiscum*, which is commonly called the Wild Mallow, and by some *Plistolochia*," which by all is recorded to be like the Mallow, and to be a kind of wild Mallow; but how it should come to look like a Parsnip, I am at a Loss to imagine, especially of the *Plistolochia*; for this, in another Place, he ranks among the *Aristolochia's*, and makes a fourth Kind of it.

As to *Hibiscum* being like a Parsnip, which *Pliny* affirms, I fancy, that I see whence he derived his Conceit. He had read in some Latin Author, that *Hibiscum* was a kind of wild Mallow, and pass'd with some under the Greek Appellation of *Molochæ Agria*, and differed not at all from the *Pastinata*, but only in Slenderness. Now by the *Pastinata* is to be understood the Garden Mallow, which is planted *Pastinato*, "in delved Ground." All cultivated Things are larger than what are wild, and therefore the wild Mallow was slenderer than the sative, or *pastinata*, "planted in delved Ground." The *Hibiscum*, he says, was condemn'd as Food, that is, the wild Mallow; for we are assured, that the Garden Kind was formerly eaten. *Pliny* therefore, having his Thoughts diverted another way, mistook *Pastinata* for *Pastinaca*, "a Parsnip." 'Tis certain, and not a little material to the Purpose, that the most ancient Manuscripts, in that Place, have *Pastinata* in express Letters; *Hibiscum a Pastinata gracilitate differt.* "Hibiscum differs from the *Pastinata* in its Slenderness;" whereas in other Places, the same Copies have the Word *Pastinaca*, whole and uncorrupted. The Author from whom *Pliny* borrow'd his Account, doubtless wrote, *Hibiscum, id est, agrestis Malva, a Pastinata gracilitate differt.* "Hibiscum, that is, the wild Mallow, differs from the cultivated, in Slenderness." He omitted the *agrestis Malva*, and read *Pastinaca* for *Pastinata*, as these two Letters are often exchange'd for one another, in Words of that Form; for Example, *Securiclata, securiclaca; lingulata, lingulaca; personaca, personata, ἢ προσοπῖσις*, [*Protopitis*] by some called *Personacia*, "a Personation." The Glossary has *Pastinatio, φολά*, "Pastination [means] a Cultivation." It is not to be doubted then that *φολά* is, "the planted," cultivated, and Garden Mallow, was properly called *Pastinata*, "planted in delved Ground." Under the same Mistake he asserts every-where, that the *Hibiscum* is like a Parsnip.

I formerly took the *Alcæa* of the Greeks to be meant by the Name *Hibiscum*; for the *Alcæa* is a kind of wild Mallow, which some, we are assured, have confounded with *Althæa*. For *Neophytus*, under the Name of *Althæa*, has described the *Alcæa*, which he furnishes with Leaves, *ἐπεχισμένα ποδὶ τὰ τῆς ἱερᾶς βόλαντος*, "indented like those of Vervain." Now I thought, that *Pliny* had reckon'd this indenting of the Leaves in *Alcæa*, which he took for *Althæa*, among the Characters in which it resembled a Parsnip; but nothing is more certain, than that he fell into this Mistake in the manner we have related.

The same Author, in another Place, thus distinguishes the *Althæa* among the other Mallows: *Ex sylvestribus, cui grande Folium, & Radices albæ, Althæa vocatur ab excellentia Effectus, ab aliis Aristalthea.* "Of the wild Kinds, that with the large Leaf, and the white Roots, is called *Althæa*, from its excellent Virtues, by some named *Aristalthea*." An ancient Manuscript indicates, that this last Word is not rightly written, by reading *ab aliis Plitolochia* "by others *Plitolochia*." Hence it appears, that it ought to be read *Plistolochia*, which is confirmed by the Manuscript Index: *Malva Althæa, five Plistolochia*, "the Mallow *Althæa*, or *Plistolochia*." In another Place it says, that *Hibiscum* is called by others *Plistolochia*: Perhaps it took that Name from its Virtue in extracting the Secundines, which the Greeks call *λοχία*.

Pliny, in reckoning the Kinds of *Aristolochia*, makes *Plistolochia* the fourth, which is also called *πολύριζος*, "many-rooted,"

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"rooted;" for thus it is written in the Manuscript Index: *Aristolochia, five Climatitidis, five Cretica, five Plifstolochia, five Lochia Polyrhizosque, quæ Malum Terræ.* So it ought to be read.

But I never read this Name *Plifstolochia* in Greek Authors, and I am afraid it took its Origin from some wrong Reading, either by *Pliny* himself, or one of those who used to read to him, who hastily running over the Greek Book written in large Letters, and slightly glancing on the Words, as is too commonly done, might for *APICTOAOXIA* read *ΠΑICTOAOXIA*, which is not so very remote from the Truth, nor unsuitable to *Pliny's* Character. For my part, I can give no Account for the Name, the changing it into *Pifstolochia* being contradictory to all the Books; nor can I see the Reason of this Word *πιστολόχια* [*Pifstolochia*].

Authors say never a Word of the Althæa called *Plifstolochia*, or *Aristolochia*; and I am apt to think, that *Pliny* made this too out of *Theophrastus*, by wrong reading and pointing his Words. *Theophrastus*, enumerating the medicinal Herbs which grow in *Arcadia*, has these Words: *Καὶ ἡ ῥῆρ Ἀλθαία, καὶ τοὶ δὲ μαλάχην ἀγρίαν, καὶ ἡ ἀριστολόχια, καὶ τὸ σίσελι.* "And there is the Althæa, which they call *Wild Mallow*, and *Aristolochia*, [Birthwort] and *Seseli* [*Hartwort*]." *Pliny* read or understood the Words, as if they had been written *ἐκείνοι δὲ μαλάχην ἀγρίαν, καὶ ἀριστολόχια.* "They call it *Wild Mallow* and *Aristolochia*," where perhaps he read himself, or, deceiv'd by his Ears, imagin'd he heard another read *καὶ πιστολόχια*, "and *Plifstolochia*."

That Place in *Pliny*, where he distinguishes between *μολόχην* [*Moloch*] and *μαλάχην* [*Malache*] deserves our Laughter. The Passage, as it ought to be read, *Lib. 20. Cap. 21.* runs thus: *Duo Genera eorum Amplitudine Foliis discernuntur. Majorem Græci Molochen vocant in Satiois, alteram ab emolliendo ventre dictam putant Malachen.* "Two Kinds of them are distinguished by the Largeness of the Leaf. The greater is called by the Greeks, *Moloch*, and is cultivated in Gardens; the other is supposed to have its Name *Malache* [*Greek μαλάχην*, soft] from mollifying the Belly." But *μολόχην* [*Moloch*] is the Word in the *Attic* Dialect, and *μαλάχην* [*Malache*] in the others. This is the Rule in the ancient Grammarians; but I should rather think *μολόχην* an *Æolic* Word; for 'tis their Manner to change *α* into *ο*; so they say, *ὄνυχον* [*Onoguron*] for *αιάγρον* [*Anaguron*] which is in the *Attic* Dialect; *ὄστρον* for *ἀστρον*, *βῆρις* for *βᾶρις*, and so in Hundreds of others; but we shall now finish what we proposed. What is commonly called *Moluwifca*, or *Ibiscum*, is not the Althæa of the Greeks, tho' the old *Latins* called this *Ibiscus*. The true Althæa, at this Day, is unknown to our Botanists; for the *Bijmalua*, which is the *Roman Ibiscum*, is not determined to one thing. Perhaps the old *Romans* themselves were ignorant of the true Althæa; for what they called *Ibiscum*, was no other than what is called *Molua-Ibiscum*; so much is certain.

Tho' Althæa be like the wild Mallow, yet, which is strange, *Diopscorides* has not assign'd it a Place among the Mallows, as if he thought it of a different Kind from them. For he describes the common Mallows in his second Book, and defers the mentioning of Althæa to his third Book. What he thus separated, he does not seem to think of the same Kind, though he says, that Althæa is a Species of the wild Mallow.

The *ἀναδενδρομαλάχην* [*Anadendromalache*] mentioned by *Galen*, and mistaken by some for the same as *Ibiscus* or Althæa, is another thing. The Authors of the Greek Parriery have these Words: *ἔστι δὲ ἑτέρα βλάστη λεγόμενη ἀναδενδρομαλάχην, ὥστε τινῶν σαλκίων ἔστι τὸ φύλλον τὰ δὲ ῥίζαι τῶν αὐτῶν, τινὲς ῥίζαν ὡσαύτως σκευάζουσιν, καθὼς ἐπὶ τῷ γ. γρ. πηλαί χροῖται.* "There is another Herb called *Anadendromalache*, and by some *Salcies*; this has a broader Leaf, and the Roots are prepared in the same manner as before directed." I take this to be the Alcea of *Diopscorides*, which the Name *σαλκίον*, [*Salcies*] being a Corruption of *ἀλκαῖον*, [*Alcea*] plainly intimates. *Galen* does not mention Alcea, but seems to mean the same by the Word *Anadendromalache*, *Salmafus de Homonym. Hyl. latr. Cap. 42.*

Notwithstanding the Opinion of *Salmafus* to the contrary, I find most Botanists esteem our Althæa to be the same as that of *Diopscorides*.

ALTHANACA, or ALTHANACHA, (Auripigmentum) Opiunt. It is also called **ALTERNET, ALBIMEC.**

ALTHEREGIUM, the Arabic Name given by *Avicenna* to a certain Swelling, resembling those which happen in a Cachexy, and proceeding from a morbid State of the Liver, and an ill Habit of Body. The Swellings are also like those which appear under the Eyes, and in the Faces, of Persons who sleep over-much. A Tympany is a Disease of the same Kind. *Fabric. Ab Aquapendent. Lib. 1. Cap. 10.*

ALTHERIS, ἀλθίς, from *ἀλθεῖν*, to cure or heal. It signifies the Cure of a Dittemper, in which Sense it is frequently used by *Hippocrates*.

ALTHOLIZOI. See **ALTOLIZOIM.**

ALTIHT. The Name given by *Avicenna* to the *Laserpitium* of the Antients.

ALTIMAR, AYCAPHER, (Æs ustum) burnt Copper. *Rulandus.*

ALTIMIO, (Fæx Plumbi) the Dross or Scoria of Lead. *Rulandus.*

ALTINCAR, a sort of factitious Salt used in the Purgation and Separation of Metals. *Castellus* from *Libavius*.

ALTINGAT, Flos Aris, Rust of Copper, Verdigris. *Rulandus.*

ALTINURAUM, Vitriol. *Rulandus.*

ALTOLIZOI, a Word mentioned by *Helmont*, which is in a great measure unintelligible. In his Treatise *De Lithiast*, he directs the Ludus of *Paracelsus* to be well confuted, calcin'd, and boil'd into the Form of an Oil, which is almost express'd by a single Word *Fel Terræ*, or **ALTHOLIZOI correctum**, which he says, signifies, totally converted into Oil by Ebullition. *Castellus* has made two or three Blunders under this Article. For he calls it *Altolizom*, whereas *Helmont's* Word is *Altholizoi*, and *Altholizom*; and he mistakes in his Explanation *Ludus*, and calls it *Lutum*. See **ALKAHESR.**

ALTUS. This is used sometimes in a medicinal Sense join'd with *Sopor*, to express a sound Sleep, inclining to a Lethargy, or Coma.

ALU. See **ARE-ALU,** and **ATTY-ALU.**

ALUACH, or ALUECH, pure or refin'd Tin. *Rulandus.*

ALUCO, a Bird mentioned by *Bellonius, Aldrovandus,* and *Johnson.*

It is a nocturnal Bird of Prey, of the Owl Species; they are of different Sizes; for some are as big as a Capon, and others of the Size of a Pigeon: They are of a Lead colour spotted with White; their Head is large, black, without Ears, crown'd with Feathers; their Beak is white, their Eyes are large, black, and seem to be sunk in their Heads, because they are surrounded with many Feathers; their Limbs are cover'd with white Feathers, their Feet are feather'd and arm'd with long Claws, which are strong and sharp; they live in decay'd Buildings, Towers, in Caverns, and in the Hollow of old Oaks; they ramble at Night in the Fields; they live upon Mice, and little Birds; their Gullet is so large, that they swallow Pieces as big as an Egg; their Cry is frightful; they contain a great deal of volatile Salt and Oil.

Their Blood is good for an Asthma, being dried, pulverized, and taken at the Mouth: The Dose is from half a Scruple to two Scruples; their Brains are esteemed good for agglutinating Wounds. *Lenery de Drogues.*

ALUDEL. An **ALUDEL** is a chymical Vessel used in Sublimation. Many of these are generally employ'd in one Operation, in the following Manner: The Matter to be sublim'd is put into a Body, or Pot, the superior Part of which is fitted into a Hole on the lower Part of an Aludel, and the superior Part of the Aludel is received into the inferior Part of the next Aludel, and so on, till as many Aludels are set one upon another, as the Process requires; to the superior Part of the uppermost Aludel, a Head or Alembic is fix'd, to receive the Matter which sublimes. So that there is a continu'd Tube form'd by the Aludels from the Pot which contains the Matter to be sublim'd, to the Head or Alembic which receives it, in the manner, that a continu'd Chanel is form'd by a Number of Elm Pipes. The Use of Aludels seems to be to remove the Matter sublim'd in the Head to a Distance from the Fire.

ALUDIT, Mercury. *Rulandus.*

ALVEARIUM, the Bottom of the Concha, or Hollow of the external Ear; it terminates at the Meatus Auditorius, which is the Entrance of the Auris or Ear, strictly so call'd. *Drake.*

It is generally defin'd to be that Cavity where the Cerumen or Ear-wax is principally lodged.

ALUECH. See **ALUACH.**

ALVEOLI, the Sockets in the Jaw Bones, in which the Teeth are plac'd, by that sort of Juncture or Suture, which Anatomists call *Gomphosis*, by Joiners call'd *Pegging*. The Alveoli are lin'd with a Membrane of exquisite Sense, which seems to be nervous, and is wrapp'd about the Roots of each Tooth. *Drake.*

There are usually sixteen Alveoli in each Jaw.

ALVEUS. Medicinally it is apply'd to many Tubes or Canals, thro' which some Fluid flows, particularly to the Ducts which convey the Chyle from the Receptacle of the Chyle to the Subclavian Vein.

ALUFIR, Rubedo, Redness. *Rulandus.*

ALVIDUCA, Medicamenta, are purging Medicines.

ALUIS. *Rulandus* calls this *Alasor, id est Vabs*, without any farther Explanation. But *Johnson* explains *Alasor, Sal Alkali.*

ALUM, or ALUS. A Name in *Scribonius Largus* for the *Symphytum Comfrey.*

ALUMBOII, Plumbum Ustum, burnt or calcin'd Lead. *Rulandus.*

ALUMEN, Alum, Στυπτεῖν. *Hippocrates* recommends **ALUM** in many Passages of his Treatise of Ulcers, as a proper Application for Ulcers, especially those of the depascent Kind (*roquas*) sometimes burnt, and sometimes not. He thinks the

Egyptian

Egyptian the best, and next that the *Melian* (that got in *Melos*). And in his Treatise on the Diseases of Women, *Lib. 1.* he orders burnt ALUM as an Ingredient in an Application he directs for Ulcers of the Uterus. And afterwards in the same Treatise he advises *Egyptian* ALUM, with some other Ingredients, to be moisten'd with Goose Grease, and then with Wool to be made into a Pessary, and apply'd to the Os Uteri, with a View of promoting Fecundity. And in his Epidemics, *Lib. 1.* he also advises *Egyptian* Alum as a beneficial Application in painful Tumors of the Gums.

Celsus, *Lib. 6. Cap. 19.* recommends *Melian* Alum prepared in the following manner, as an effectual Application to Ulcers of the Fingers, which the *Greeks* call *πτερυγία*. Melt round *Melian* Alum in Water, till it acquires the Consistence of Honey; then mix with it a Quantity of Honey, equal in Weight to the Alum when dry, and stir them about with a Spatula, till the Mixture is of a Saffron Colour. With this anoint the Ulcers.

The Accounts of Alum we have from *Dioscorides*, *Pliny*, *Oribanus* and *Aetius*, are as follows:

Almost every Kind of Alum is found in *Egypt*, and among the same Metals; for the *Scissile* Alum is, as it were, the Flower of the Solar. It is also produced in other Places, as in *Melos*, *Macedonia*, *Lipara*, *Sardinia*, *Hierapolis* in *Phrygia*, *Libya*, *Armenia*, and many other Countries, as well as Oker. There are very many Species of Alum; but the most serviceable for medicinal Purposes, are the *Scissile*, the *Round*, and the *Liquid*; and of these the best is the *Scissile*. Again, of this *Scissile* Alum, the most valuable is what is fresh, very white, free from Gravel, smells strong, and is of an extraordinary Astringency; such as lies not close compacted like a Clod, nor falls abroad into thin Slices like Chips: but when broken into Bits, and pulled asunder, runs out into Filaments, like grey Hairs. Such is the Sort called *Trichites*, [hairy] which grows in *Egypt*. There is a Stone very like this Alum, but distinguish'd from it by its Taste, which has nothing of Astringency. The round Species, that is factitious, is to be refused as good for nothing; you may know it by the Figure. Chuse what has its Roundness from Nature, is full of Bubbles, is of a white Colour, and powerfully astringent; and has, besides these Properties, a sort of Paleness, and is somewhat fat, and comes from *Melos* or *Egypt*. The liquid Kind ought to be quite pellucid, milky, simple, and of equal Liquidness in all its Parts, clear of Sand or Gravel, and exhaling a Warmth as from a Fire.

These Alums are of a heating and astringent Nature, and have the Virtue of cleansing the Eye, and clearing it of whatever darkens the Pupil, and also of consuming fleshy or other Excrecencies that grow about the Eyelids. The *Scissile* is more to be valued than the Round. They are burnt or roasted like Chalcitis. They restrain the Putrefaction of Ulcers, and stop Hemorrhages. They compress the flaccid Gums, and loosen loose Teeth, if used with Vinegar or Honey; mixed with Honey, they cure the Aphthæ; used with the Juice of Knot-grass, they are good for Exanthemata and Rheums in the Ears. With Cabbage Leaves, or boil'd Honey, they are effectual in the Leprosy; and are good in warm Water to make a Fomentation for the Itch, Paronychia, Pterygia, and Kibes. Mix'd with Lees of Vinegar and burnt Galls, of each an equal Quantity, they are good to anoint phagedenic Ulcers; and with a double Quantity of Salt restrain the spreading of Noma. Mix'd with Ervum and liquid Pitch, they absterge all Kinds of Scurf anointed with them; and, used in Water, scour away all Nits and Lice, and are good for Scalds or Burns. They are used to anoint oedematous Tumours, and to take off the rank Smell of the Ala and Pudenda. What comes from *Melos* promotes Conception in Women, *περὶ τῆς συνιδεῖσθαι παρὰ τὴν αἰσίδα τὴν ὀστέαν*, and expels the Fœtus. In short, the Alums are, all of them, proper for Excrecencies of the Gums, and for the Uva and Ponsille; and also for the Mouth, Ears, and Pudenda, when used with Honey to anoint the Parts. *Dioscorides*, *Lib. 5. Cap. 123.*

Alum is supposed to be a saline Humour of the Earth [*salugo Terra*]. There are several Kinds of it: In *Cyprus* they have the White and the Black, where the Difference in Colour is inconsiderable, but in the Ule very remarkable; for the White and Liquid are very useful in dying Wool of a bright Colour; and the Black, on the contrary, in giving it a sad and dark one; the latter is also serviceable in refining Gold. 'Tis all, however, generated of Water and Mud, that is, from the Nature of the Exudation of the Earth. What the Winter brings together by uniting Streams, is matured by the Summer Suns, and what comes to Perfection soonest, is the whitest. It is produced in *Spain*, *Egypt*, *Armenia*, *Macedonia*, *Pontus*, *Africa*, and the Islands of *Sardinia*, *Melos*, *Lipara*, and *Strongyle*. The choicest is to be had in *Egypt*, the next in *Melos*. There are two Kinds of this, namely, the Liquid and the Solid; the first is presumed to be good, if it be limpid, and have a Milkiness, may be rubbed without emitting an offensive Vapour, but a sort of fiery Sparkles, with a sensible Heat: This they call *Phrymon*, [useful] and try whether it be adulterated by

the Juice of a Pomegranate, which turns the true Alum black. There is another Kind, which is pale and rough, and dy'd with Galls; for which Reason they call it *Paraphoron* [good for nothing].

The liquid Alum is of an astringent, hardening, and corroding Quality. Mixed with Honey, it heals Ulcers in the Mouth, Pimples, and Itching. For these Purposes, they mix two Parts of Honey with one Part of Alum, and manage the Cure in a Bath. It is taken in Pills for Disorders of the Spleen; and to remove an Itching, and for pissing of Blood. Mixed with Nitre and wild Fennel Flowers, it cures the Itch.

There is one Kind of concrete Alum, which the *Greeks* call *Schiston*, that cleaves, and when pulled asunder, runs into a sort of grey Hairs, whence some chuse to call it *Trichitis*. This is made out of a Stone, whence it is called *Chalcitis*, so that it is a sort of a Sweat of this Stone coagulated into a spumeous Substance. This Kind is drying, and not so astringent as the other; but it is very proper for the Ears, either put into them, or the Part anointed; and also for Ulcerations of the Mouth, and for the Teeth, if the Spittle be retained with it. It is also an Ingredient in Collyria, and Medicines adapted to the Pudenda of both Sexes. They boil it in Pans till it will melt no longer.

There is another Kind, of an inferior Nature, which they call *Strongyle, round*. Of this there are two Sorts, the Fungous, which readily imbibes Moisture, and is counted good for nothing; and the Punicous, which is better than the other, and lax and porous like a Sponge, naturally round, bearing pretty much upon the White, has a sort of Fatness, is friable without Sandiness, and will not give a black Colour. They burn it by itself, over a clear Fire, till it turns to Ashes. All the Kinds of Alum are of an astringent Quality, from whence they have their *Greek* Name. *Pliny*, *Lib. 25. Cap. 15.*

All sorts of Alum have a remarkable Tartness, and are of gross Parts; the finest is the *Scissile*, and next to this the Round, and the Astragaline. The Liquid consists of Parts remarkably gross, as well as that Sort called *Placitis*, and the *Plumbitis*. *Oribas. Med. Col. 15. Cap. 1.*

All Alums are extremely astringent, drying, and conglutinating: the finest is the *Scissile*; it is usually added to other Ingredients in Medicines after they are boiled; for there is no Rule to direct us in the boiling of it. When it changes Colour, it commonly takes a Green. *Aetius Vetr. 4. Serm. 2. Cap. 25. P. 697. C.*

There are three Sorts of ALUM commonly used; the first is the

Alumen rupeum, *Offic. Alumen rupeum sive Crystallinum*, *Ind. Med. 7. Alumen factitium*, *Mer. Pm. 217. Alumen*, *Schw. 362. Alumen factitium pellucidum*, *Calc. Mus. 169. Alumen rupeum candidum & pellucidum*, *Aldrov. Mus. Metall. 334. Commune vulgò, COMMON ALUM. Dale.*

The second Sort of Alum is the

Alumen Rochi Gallis, *Offic. Alumen Romanum sive rubrum*, *Ind. Med. 7. Alumen Rochæ*, *Aldrov. Mus. Metall. 332. Worm. 23. Alumen rupeum seu Rochæ*, *Charlt. Foll. 9. Alumen factitium ex præduro lapide subrubro confectum*, *Calc. Mus. 169. Alumen Romanum quibusdam. ROCH-ALUM.*

It is like the common Alum, only of a pale-red Colour. We have it imported from *Italy*, *Smyrna*, &c. They make it after the same manner as they do the common Alum, but without the Addition of Urine and Kali, as I am informed by a Letter from the learned Dr. *Tancred Robinson*, M. D. It agrees in Virtues with the preceding. *Dale.*

The third Sort of Alum is the

Alumen plumosum, *Offic. Ind. Med. 7. Alumen plumum sive Trichites*, *Schrad. 3. 477. Alumen plumæ, quod Scissile Latinis*, *Aldrov. Mus. Metall. 331. PLUMOSE, or LEATHER'D ALUM. Dale.*

It is sometimes called *Alumen lamenum*.

Alumen Catenum is a Name for the *Gineres chavellati*, Pot-ash.

In order to the understanding what the modern Alum, which we make use of, is, with Exactness, it will be necessary to give an Account of its Production; and by this it will appear, that our Alum differs considerably from the Alum of the Antients; for theirs was found naturally, without the Help of Art, whereas ours is factitious, and consists of other Ingredients, besides the concreted Juice, which the Antients called ALUM.

Alum is made of a Stone, of Sea-weed and Urine.

The Stone is found in most of the Hills between *Scarborough* and the River of *Tees*, in the County of *York*; as also near *Preston* in *Lancashire*. It is of a bluish Colour, and will cleave like *Cornish Slate*.

The Mine, which lies deep in the Earth, and is indifferently well moisten'd with Springs, is the best. The dry Mine is not good; and too much Moisture cankers and corrupts the Stone, making it nitrous.

In this Mine are found several Veins of Stone call'd *Doggers*, of the same Colour, but not so good. Here are also found those, that are commonly call'd *Snake Stones*: The People have a Tradition, that the Country thereabouts being very much annoyed with Snakes, by the Prayer of St. *Milda*, there inhabiting,

inhabiting, they were all turned into Stones; and that no *Snake* hath ever since been seen in those Parts.

For the more convenient working of the *Mines*, which sometimes lie twenty *Yards* under a Surface or Cap of Earth, (which must be taken off, and barrow'd away) they begin their Work on the declining of a Hill, where they may be also well furnished with Water. They dig down the Mine by Stages to save Carriage, and so throw it down near the Places where they calcine it.

The Mine, before it is calcined, being exposed to the Air, will moulder in Pieces, and yield a Liquor, whereof *Copperas* may be made; but being calcined, it is fit for Alum. As long as it continues in the Earth, or in Water, it remains a hard Stone.

Sometimes a Liquor will issue out of the Side of the Mine, which, by the Heat of the Sun, is turned into natural Alum.

The Mine is calcined with *Cinders* of *Newcastle Coal*, *Wood*, and *Furzes*; the Fire is made about two Feet and an half thick, two *Yards* broad, and ten *Yards* long. Betwixt every Fire, are Stops made with wet Rubbish, so that any one or more of them may be kindled, without Prejudice to the rest.

After there are eight or ten *Yards Thickness* of broken Mine laid on this Fuel, and five or six of them so cover'd, then they begin to kindle the Fires; and as the Fire rises towards the Top, they still lay on fresh Mine; so that to what Height you can raise the Heap, which is oftentimes about twenty *Yards*, the Fires, without any further Help of Fuel, will burn to the Top, stronger than at the first Kindling, so long as any Sulphur remains in the Stones.

In calcining these Stones, the Wind many times does Hurt, by forcing the Fire, in some Places, too quickly thro' the Mine, leaving it black and half burnt; and in others, burning the Mine too much, leaving it red. But where the Fire passeth softly, and of its own accord, it leaves the Mine white, which yields the best and greatest Quantity of Liquor.

The Mine, thus calcined, is put into Pits of Water, supported with Frames of Wood, and rammed on all Sides with Clay, about ten *Yards* broad, and five Feet deep, set with a Current, that turneth the Liquor into a *Receptory*, from whence it is pumped into another Pit of Mine; so that every Pit of Liquor, before it comes to the Boiling, is pumped into four several Pits of Mine, and every Pit of Mine is steeped in four several Liquors, before it be thrown away; the last Pit being always fresh Mine.

This Mine, thus steep'd in each of the several Liquors twenty-four Hours, or thereabouts, is of course four Days in passing the four several Pits, from whence the Liquors pass to the Boiling-house.

The Water or Virgin Liquor oftentimes gains, in the first Pit, two Pounds Weight; in the second, it increaseth to five Pounds Weight; in the third, to eight Pounds Weight; and in the last Pit, which is always fresh Mine, to twelve Pounds Weight; and so in this Proportion, according to the Goodness of the Mine, and the well calcining thereof. For sometimes the Liquors, passing the four several Pits, will not be above six or seven Pounds Weight; at other times, above twelve Pounds Weight, seldom holding a constant Weight one Week together. Yet many times, Liquor of seven or eight Pounds Weight produceth more Alum, than that of ten or twelve Pounds Weight, either through the Illness of the Mine, or, as usually, the bad calcining thereof. And if by passing the weak Liquor through another Pit of fresh Mine, you bring it to ten or twelve Pounds; yet you shall make less Alum with it, than when it was but eight Pounds Weight. For what it gains from the last Pit of Mine, will be most of it *Nitre* and *Slam*, which poisons the good Liquors, and disorders the whole House, until the *Slam* be wrought out.

That which they call *Slam*, is first perceived by the Redness of the Liquor, when it comes from the Pit, occasioned either by the Illness of the Mine, or, as commonly, the over or under calcining it, as abovesaid; which in the Settler sinks to the Bottom, and there becomes of a muddy Substance, and of a dark Colour. That Liquor which comes whitest from the Pits, is the best.

When a Work is first begun, they make Alum of the Liquor only that comes from the Pits of Mine, without any other Ingredients, and so might continue, but that it would spend so much Liquors as not to quit Cost.

Kelp is made of a Sea-weed call'd *Tangle*, such as comes to London on Oysters. It grows on Rocks by the Sea-side, between High-water and Low-water Mark. Being dried, it will burn and run like *Pitch*; when cold and hard, 'tis beaten to *Albes*, steeped in Water, and the Lees drawn off to two Pounds Weight, or thereabouts.

Because the Country People, who furnish the Work with *Urine*, do sometimes mingle it with Sea-water, which cannot be discovered by Weight, they try it, by putting some of it to the boiling Liquor; for so, if the *Urine* be good, it will work like *Yeast* put to *Beer* or *Ale*; but if mingled, it will stir no more than so much Water.

It is observed, that the best *Urine* is that which comes from poor labouring People, who drink little strong Drink.

The boiling Pans are made of Lead, nine Feet long, five Feet broad, and two and a half deep, set upon Iron Plates about two Inches thick, which Pans are commonly new-cast, and the Plates repaired five times in two Years.

When the Work is begun, and Alum once made, then they save the Liquor which comes from the Alum, or wherein the Alum shoots, which they call *Mothers*; with this they fill two third Parts of the Boilers, and put in one third Part of fresh Liquor, which comes from the Pits. Being thus filled up with cold Liquors, the Fires, having never been drawn out, will boil again in less than two Hours time; and in every two Hours time, the Liquor will waste four Inches, and the Boilers are filled up again with green Liquor.

The Liquor, if good, will in boiling be greasy, as it were, at the Top; if nitrous, it will be thick, muddy, and red. In boiling twenty-four Hours, it will be thirty-six Pounds Weight; then is put into the Boiler about a Hoghead of the Lees of *Kelp*, of about two Penny-weight, which will reduce the whole Boiler to about twenty-seven Pounds Weight.

If the Liquor is good, as soon as the Lees of *Kelp* are put into the Boiler, they will work like *Yeast* put to *Beer*; but if the Liquor in the Boiler be nitrous, the *Kelp-Lees* will stir it but very little; and in that Case, the Workmen must put in the more and stronger Lees.

Presently after the *Kelp-Lees* are put into the Boiler, all the Liquor together is drawn into a Settler, as big as the Boiler, made of Lead, in which it stands about two Hours, in which time most of the *Nitre* and *Slam* sink to the Bottom.

This Separation is made by means of the *Kelp-Lees*; for when the whole Boiler consists of green Liquor drawn from the Pits, it is of a Power strong enough to cast off the *Slam* and *Nitre*; but when the Mothers are used, the *Kelp-Lees* are needful to make the said Separation.

Then the said Liquor is scooped out of the Settler, into a Cooler made of Deal Boards, and rammed with Clay. Into this is put twenty Gallons or more of *Urine*, more or less, according to the Goodness or Badness of the Liquor; for if the Liquor be red, and consequently nitrous, the more *Urine* is required.

In the Cooler, the Liquor, in temperate Weather, stands four Days. The second Day the Alum begins to strike, gather, and harden about the Sides, and at the Bottom of the Cooler.

If the Liquor should stand in the Cooler above three Days, it would, as they say, turn to *Copperas*.

The Use of *Urine* is as well to cast off the *Slam*, as to keep the *Kelp-Lees* from hardening the Alum too much.

In hot Weather, the Liquors will be one Day longer in cooling, and the Alum in gathering, than when the Weather is temperate. In frosty Weather, the Cold strikes the Alum too soon, not giving time for the *Nitre* or *Slam* to sink to the Bottom, whereby they are mingled with the Alum. This produceth double the Quantity; but, being foul, is consumed in the Washing.

When the Liquor hath stood four Days in the Cooler, then that call'd *Mothers* is scooped into a Cistern, the Alum remaining on the Sides, and at the Bottom; and from thence the Mothers are pumped back into the Boiler again; so that every five Days the Liquor is boiled again, until it evaporate, or turn into Alum or Slam.

The Alum taken from the Sides and Bottom of the Cooler, is put into a Cistern, and washed with Water, that hath been used for the same Purpose, being about twelve Pounds Weight, after which it is roached, as followeth:

Being washed, it is put into another Pan, with a Quantity of Water, where it melts and boils a little. Then it is scooped into a great Cask, where it commonly stands ten Days, and is then fit to take down for the Market.

The Liquors are weighed by the Troy Weight, so that half a Pint of Liquor must weigh more than so much Water, by so many Penny-weight. *Phil. Trans. Abr. Vol. 2.*

Somewhat different from this is the Account given by *Hoffman*, of the Production of Alum at the Works near *Hall*, in *Saxony*. As this Author's Experiments and Remarks upon ALUM are curious and instructive, I shall insert them here.

Of the Generation and Nature of ALUM.

As Vitriol is produced from a sulphureous Mineral, either simple or compound, that is, of Iron and Copper, so Alum, which is, as it were, a kind of white Vitriol, is also generated of a sulphureous Mineral, partly bituminous, partly luteous. Therefore the Acid which is extracted from Alum, seems to be of the same Nature and Properties with what is afforded by Vitriol, whatever Difference there is in the Earths, or Receptacles, in which both these Kinds of Salts are conglutated. For the *Caput Mortuum* of Vitriol is of a Metalline, that is to say, of an Irony or Copper-like Quality; but the Earth of Alum seems to be a peculiar Kind of Bole, very spongy and subtil.

The remarkable Agreement between the Acids of Vitriol and Alum will abundantly appear from the following Experiments:

1. Vitriol of Iron is prepared with Spirit of Alum, and with Iron, as well as with Spirit of Vitriol; and Aqua-fortis is as well made with Alum as Vitriol and Nitre. Again, if the Acid of Alum, by the Mixture of alkaline Salt, be converted into a neutral Salt, and this Salt, with a little Salt of Tartar and Powder of Charcoal, be melted in a Crucible, there is produced a red Mass like Liver of Sulphur, in the same manner, as it usually happens, when the Acid of Vitriol or Sulphur is fixed by Salt of Tartar, or the alkaline Salt contained in Nitre or common Salt, and converted into a neutral Salt.

Tho' Vitriol and Alum be produced, as it were, from the same Matter, and from one sulphureous Matrix, yet each of them is endued with peculiar Properties and Virtues. For Alum and Vitriol are very different in Taste; and the common Vitriol leaves no such Astringency on the Palate, as is observed in Alum. Again, a Solution of Alum makes no Commotion nor Precipitation in a Solution of Gold or Silver, which a Solution of Vitriol is known to effect. Nor will a Decoction of Galls, or Pomgranate Flowers, grow black, and be converted into Ink, by the Mixture and Solution of Alum, as we observe it does when mix'd with a Solution of Vitriol. Lastly, in Alum, the Acid may be readily separated, by the Help of Fire, from its earthy Principle, in which it is inherent; but the Case is otherwise with Vitriol.

To proceed, in Alum the Acid is very much saturated with its Earth; for an Ounce and a half of Alum, by a vehement Calcination, affords six Drams and a half of aluminous Earth, quite insipid. That there is a less Portion of Acid in Alum than in Vitriol, may be known by this, that the Acid of Vitriol, saturated with a Solution of Pot-ash, produces a far greater Quantity of Sal Enixus, than would be afforded by a Solution of Alum saturated with the same Lixivium.

Besides, the Salt this way prepared of Alum is more successful in loosening and purging the Belly, than what is prepared of Vitriol, according to the Method of *Tackenius*. And not long since I met with a Phenomenon not unworthy to be related, which is, That while I was managing and beating this Salt in a Mortar, it emitted Sparks in great Plenty, which I never observed in any other Salt.

Here we must not pass over a very fine Experiment of *Hombérg's*, who with three Parts of Alum, and one Part of any combustible Matter, which turns to a Coal, by a previous Calcination, Distillation, and Ignition, in a closed Vessel, prepared a Phosphorus, or sulphureous Matter, which immediately kindled at the free Access of Air. But this inflammable Matter cannot be produced with the Acid of Vitriol, nor the Spirit of Salt or Nitre; a plain Indication, that the Acid of Alum, as being more subtil, has a freer Ingress into the phlogistic Earth, than the Acid of Vitriol itself. See below *Hombérg's Memoire*.

But it happens, that tho' Alum is known almost to every body, yet its mineral Elements and Preparations are not clearly understood by the curious Naturalists. Wherefore I thought it worth my Pains in this Place, to shew the Way how some thousands of Quintals are yearly made at the Village of *Schwenzel*, near the City of *Tieben*, five Miles from *Hall*, where are very plentiful Mines of Alum.

Near this Village are Strata of bituminous Matter, of vast Extent, which Matter is the Matrix of this Salt. These Strata lie two or three Yards deep, whence they dig the Earth, which is of a blackish Colour, and of an astringent aluminous Taste. If this mineral Earth be thrown into the Fire, it not only kindles, but emits a strong and foetid Smell, like mineral Sulphur set on Fire. When burnt out, there remains a spongy tasteless Mass of an Ash-colour.

The fresh Mineral Earth is thrown into Heaps, which lie a Month expos'd to the open Air; then they remove it into Vats, and are for some Days extracting the Salt by Affusions of Water; after which, the Lye is convey'd by Pipes into leaden Cauldrons, and boiled. When the Liquor is inspissated by the Consumption of one half, they mix it with a Solution of Pot-ash. This excites a vehement Ebullition with a Spumescence, and a Powder in great Plenty subsides to the Bottom. When every thing is cool, they take off the yellow Liquor, that swims at the Top, and the white aluminous Meal at the Bottom is dissolved in Water, and boiled anew; the Water, well saturated with Salt, is poured into great Vats, which stand together closed up for some Weeks. The Vessels being open'd, Crystals of a vast Bigness, in the Figure of an Octohedron, are seen sticking to the Sides.

Besides this, it is observable, that these vast Heaps of Alum Ore are kindled merely by the Heat of the Sun, and burst into open Flames, which require the utmost Care and Pains to extinguish by Affusions of Water. For when the Salt of the Alum is dissolved by the Rains, it begins to act upon its bituminous Earth; so that a rapid intestine Motion being by this means excited, not only a Heat and Smoke, but even Flames are produced, almost in the same manner as it happens when a

Mass, consisting of equal Portions of Sulphur and Filings of Steel, is moistened with Water, where, in a few Hours, arises an Ebullition, the Mass swells, sends forth a Smoke, and at last a sulphureous Flame ascends. These Experiments directly lead us to the Explication of the Nature and Causes of subterraneous Heat.

Moreover, it is worth Notice, that if these mineral Earths, after they are deprived of their Salt, are thrown together again in Heaps, and exposed to the open Air for a whole Year, they become impregnated with a very aluminous Salt, so as to serve for a new Preparation of Alum, and that for three Years together.

Hence it appears very plainly, that aluminous Salt is regenerated by the Air, and doubtless contains some universal Acid, which with the inflammable bituminous Parts, in Conjunction with the earthy ones, constitutes the Salt of Alum; nor do I know any Salt, that can be so soon regenerated from its exhausted Mineral Earth; for if crude Alum be calcined by a pretty strong Fire, to such a Degree, that no Mark of Salt remain in its spongy Earth, and this Earth be afterwards for some Days exposed to the open Air, it not only increases in Weight, but recovers its aluminous Taste, and makes an Effervescence with distilled Oil of Tartar *per Deliquium*.

In boiling of Alum, there is also one thing worthy to be inquired into, which is, that Alum cannot be brought into any solid Form, much less reduced into Crystals, from its Lye, without the Addition of Pot-ash, or some alkaline Salt. The Reason of this singular Effect and Phenomenon seems to consist in what follows: The Lye of the Mineral Earth is too acid, and too sulphureous; but because the sulphureous Liquor, in which the Acid is predominant, is very difficult to be formed into a solid saline Confluence, there needs the Accession of an Alkali, which partly saturates the redundant Acid, and partly imbibes and absorbs the pinguous and sulphureous Matter, which hinders Crystallization; by which means the Spicula may wedge themselves the more closely together, and form a more perfect Coalescence. Formerly, and even now, in other Places where they boil Alum, instead of Pot-ash, they use human Urine putrefy'd, because of the urinous volatile Salt, by which the redundant Acid is temper'd; but since the Invention of so cheap and easy an Expedient, Urine is no longer used.

The Skilful in Chymistry know what Care and Industry were employ'd in finding out some Means for volatilizing the fixed Salt of Tartar, since *Helmont* attributed a wonderful Efficacy to this Salt in curing Diseases. Hence, that otherwise celebrated Physician and Chymist, *Daniel Ludovici*, in a particular Treatise of the *Volatilization of the Salt of Tartar*, communicated to the Public a Method to effect it; for while he was distilling crude Alum mix'd with Salt of Tartar, there came forth a volatile urinous Spirit. The good Man, who was perfectly sincere, believed, that this fixed Salt was render'd volatile; but he was not aware, that Alum, according to the vulgar Method, was prepared by an Addition of human Urine, and that his volatile Salt had no other Original; for when volatile Salt is fixed by the Acid of Alum, and there is afterwards an Accession of alkaline Salt, it is again set at Liberty, in the same manner as it happens with Sal Ammoniac. Wherefore if the same Experiment be try'd upon Alum, which has not been mix'd with human Urine, but Pot-ash in the Boiling, neither Salt nor volatile Spirit will manifest themselves.

In the last Place, I think it proper to advise, that the Salt called *Epsom Salt*, which in great Quantities is exported from *England* to many other Countries, and is really a very elegant and safe Cathartic, may be prepared of Alum and common Salt. Now whoever undertakes to prepare this Salt from crude Alum, and common Salt, such as it is sold in the Shops, will come short of his Aim; but whoever tries the Experiment with a Solution of the mineral Earth of Alum, and the Lixivium which remains in the Boiling of common Salt, and proceeds in a right Method, will hardly fail of accomplishing his Desire. *Hoffman. Observ. Physico-Chym. Lib. 3. Obs. 8.*

The way of making Alum in *Italy* is contain'd in the following Extract, from the History of the Royal Academy of Sciences:

M. Geoffroy had an exact Information, in *Italy*, of the way of making Roch-Alum at the Alum-Works of *Civita Vecchia*. Near that City are Quarries of a greyish or reddish Stone, pretty hard, like the *Travertin*. They calcine it in Kilns, and then boil the Calx in Water over a great Fire. The Water takes out all the Salt that is in the Alum, there separates from it a useless Earth; and, at last, the Water is left to cool, impregnated with a Salt, which, for several Days together, shoots into Crystals, like Tartar, about the Casks, and makes what we call *Roch-Alum*.

Alum is also made at the *Solfatara*, near *Puzzoli*, in the Kingdom of *Naples*. The *Solfatara* was formerly a burning Mountain, of which there remains nothing but the Ruins, and a Circle of Rocks, which are of a yellowish White, dry, half-burnt, and calcined; from which, in several Places, there issues forth a very thick Smoke. The Natives have it by Tradition, That the Earth, which was between these Rocks, and made

the Top of the Mountain, sunk down to a certain Height. After mounting these burning Rocks, you descend into a little hollow Plain, which must have been the Top. It is nearly oval, being one thousand two hundred forty six Feet in Length, where it is longest, and a thousand Feet in Breadth. The Earth of this Plain is a yellow and white Substance, all saline, and so hot, that in some Places you cannot suffer your Hand long upon it. In Summer the Surface of this Earth is spread with a saline Flour or Dust, which they need only to sweep together, and then shovel it into the Ditches, which are full of Water at the Bottom of the Plain; after which, to evaporate the Water, which is impregnated with Salt, and depurated from Earth, they want no other Fire than what burns under the Mountain. The Water is put into large Kettles sunk in the Ground, which is their only Method. This Alum does not bear so great a Price as that of *Civita Vecchia*. They make also Sulphur at the *Solfatara*, whence the Place too has its Name.

It appears by all the Preparations of Alum, that the same Mine which produces it, produces also, or might produce, Sulphur, Nitre, and Vitriol; and perhaps these different Minerals are no other at Bottom, than the same Principle disguised in these four Salts, according as it is mixed by Nature with other Substances, or undergoes Operations by Man. M. *Geoffroy* thinks he has Reason to conclude, that the Alum of *England* and *Sweden* participates more of Vitriol, and the *Italian* of Sea-salt; which Consideration might occasion a Variation in some nice Operations, and change the Effect of some Remedies, which require an extraordinary Purity. *Hist. de l'Acad. Roy. des Scien.* 1702.

Alum, when united with sulphureous Substances of many sorts, has a very remarkable Quality of taking Fire itself, and communicating it to all inflammable Substances, by only being exposed to the Air. This Discovery was made by M. *Homburg*, and farther examin'd by the Gentlemen of the Royal Academy of Sciences, the Particulars of which are contained in the following Papers:

Take four Ounces of Excrement, newly voided, and mix with it the like Weight of Roch-Alum, grossly pounded: Put the Whole into a little iron Pan, which will hold about a Pint of Water, and set it in a Chimney over a small Fire of Coals; the Mixture will melt, and become as liquid as Water. Let it boil over a small Fire, and keep stirring it with an iron Spatula: Continue this Fire till the Matter be dry: It will grow difficult at last to be stirr'd, but you must continue to roast it in the Pan, always stirring it, and breaking of it into small Bits, and scraping off with the Spatula whatever sticks to the Bottom and Sides of the Pan, till it be perfectly dry. You must, from time to time, take the Pan off the Fire, that it may not grow red-hot; and also remove the Matter from the Fire, to prevent its sticking in too great Quantities to the Pan. When the Matter is become perfectly dry, and in small Crumbs, you must let it cool, and then pound it small in a Mortar of Metal. After this, you must put it again in the Pan over the Fire, continually stirring it. It will still contract a little Humidity, and gather into Clots, which you must continue to roast, still breaking them as before, till they are perfectly dry; let them cool; then pound them to fine Powder, which must be put in the Pan the third Time, and placed over the Fire, and roasted till perfectly dry. This done, pound it over again to a very fine Powder, which put up in a Paper, to be kept in a dry Place. And this is the first or preparatory Operation.

Take two or three Drains of this Powder, and put it into a small Matrafs, whose Belly is capable of containing an Ounce, or an Ounce and half, of Water, and whose Neck is six or seven Inches in Length: Order it so, that the Powder may take up no more than about one third of the Matrafs; close the Neck of the Matrafs very slightly with a Stopple of Paper; then take a Crucible four or five Fingers Breadth in Height, and in the Bottom thereof put three or four Spoonfuls of Sand: Upon this Sand place the Matrafs in the Middle of the Crucible; that is to say, so as not to touch the Sides. After this, fill up the Crucible with Sand, that the Belly of the Matrafs may be bury'd in it. This done, place the Crucible with the Matrafs in the Midst of a small earthen Stove, which has the Opening at the Top of about ten Inches wide, and is in Depth to the Grate six Inches. Put live Coals all round the Crucible, to half its Height, for the Space of half an Hour; then lay on more Coals, till they reach the Brim of the Crucible. Keep the same Fire for a good Half-hour, or till you see the Inside of the Matrafs begin to be red; then augment the Fire by heaping Coals above the Brims of the Crucible, and keep this great Fire for the Space of a full Hour, after which let it alone to go out.

In the Beginning of this last Operation there will come forth thick Fumes through the Neck of the Matrafs, across the paper Stopple. These Fumes sometimes come in so great Abundance, as to throw off the Stopple, which must be replaced, and the Fire diminished. These Fumes cease when the Inside of the Matrafs begins to grow red; then is the Time to increase the Fire, without being apprehensive of spoiling the Operation.

When the Crucible is cold enough to be taken out of the Stove without fear of burning the Hand, the Matrafs must be lifted out of the Sand as far as the Middle of its Belly, and left to cool for about half a Quarter of an Hour; then it must be taken quite out, and rested a Moment on the Sand. But if you are not in Haste, or if the Operation be performed in the Winter, it would be better to let the Matrafs grow quite cold in the Crucible before you take it out. 'Tis advisable also, at the same time, to put a Cork in the Neck of the Bottle, instead of the paper Stopple, to prevent as much as possible the Ingress of the Air into the Matrafs.

If the Matter, which is at the Bottom of the Matrafs, turns to Powder in the stirring, 'tis a Sign that the Operation is well perform'd; if it form a Cake, which will not resolve into Powder at the shaking of the Matrafs, it shews that the Powder was not roasted and dry'd enough, in the iron Pan, during the preparatory Operation.

Having successfully gone through the Operations, that is, having got your Matter in Powder in the Matrafs, pour a little of it, about the Quantity of a small Pea, upon a Bit of Paper, and quickly stop the Bottle again. In a Moment after the Powder has been upon the Paper, it will begin to smoke, and at the same time to kindle, and will set Fire to the Paper, or any other combustible Substance.

If you happen to pour too much Powder out of the Matrafs, you must not put it back, tho' it be not yet kindled; for it would be sure to set Fire to all the Powder in the Matrafs. Hence it appears, that there is no pouring of it from the Matrafs into another Vial, but it must always remain in the same Vessel where it was calcin'd.

This Powder is of different Colours, sometimes black, brown, red, green, yellow, and even white, according to the Vessel in which the preparatory Operation is made, and according to the Degrees of Fire given it under the two Operations. If you mix too much or too little Alum with the Excrement, the Powder will not kindle.

It kindles in the Day, as well as in the Night, without putting one to the Trouble of rubbing, chafing, or even mixing it with any other combustible Matter; and in this respect it is different from all the other factitious Phosphori as yet known to us; for that made of Urine stands in Need of a small Degree of Heat in order to make it shine or kindle. The *Smaragdine Phosphorus* requires a great deal of Heat before it can produce its Effect. The *Bolognian*, and the *Phosphorus of Baldwinus*, only shine during the Day, but produce no Effect in the Night. The distill'd Oils of Cinnamon, Cloves, Sassafras, and some others, do not kindle without Fire, unless they be mixed with well rectified Spirit of Nitre. The Phosphorus describ'd by me in the Memoirs of the Academy for the Year 1693. does not become luminous till briskly rubb'd, or struck with some hard Body.

I have only yet made this Powder of Ordure or Excrement: But I am persuaded it may also be made of Urine; and I even believe, that Urine, treated in this Manner, will yield a greater Quantity of its Phosphorus, than when manag'd in the common way; and that its *Caput Mortuum*, even after the Distillation of the Phosphorus, will yield this Powder.

I have made three different kinds of it. The first sets Fire to combustible Substances, without appearing to be kindled itself: The second not only kindles them, but burns itself like a Coal: And the third, at the same time that it kindles other combustible Substances, flames itself like a Wax-candle, according as it has had more or less Fire in its Preparation, or more or less Alum in its Composition.

In order to preserve this Powder good for any considerable time, it is necessary to keep it in a dry, well-air'd Place, to have the Bottle well-cork'd, with its Mouth always upright, and to cover it with Paper, or some other Substance; it is also proper it should be lodg'd in a dark Place, because a great Light spoils it as much as the Humidity of the Air, tho' not so soon.

In order to have a tolerable Idea of the precise Manner in which this Powder kindles, 'tis necessary to remember, that 'tis a Substance strongly calcin'd by the Fire, and that by that Calcination it has lost all its aqueous Part, and the greatest Part of its Oil and volatile Salts. By this means it has acquir'd a great many large Pores, which the volatile Matter driven out by the Fire have left empty; so that the Powder which remains after Calcination, consists only of a spongy Contexture of earthy Matter, which has retained all its fixed Salt, and a little of its fetid Oil; but the empty Pores retain for some time

a Part of the Flame which enter'd them during the Calcination, almost in the same Manner with quick Lime.

As this is the Case, we must consider, that the fixed Salt which abounds in this Powder, quickly absorbs, as it commonly does, the Humidity of the Air that comes into Contact with it. This sudden Rushing of the humid Air into the Pores of the Powder, occasions a Friction capable of producing a little Heat, which, being join'd to the Parts of the Flame retain'd in the same Pores, generates a Heat sufficient to set on Fire the small Quantity of inflammable Oil which had escap'd the Rigour of the Calcination, and which is a Part of the Powder.

As a Proof of this it may be alledg'd, that when this Powder is kept in a Vessel that is not closely stop'd, it absorbs slowly, and by Degrees the Humidity of the Air that reaches it, which not being able to produce a Friction sufficient to generate a sensible Heat, spoils the Powder, so that it will kindle no more, just like quick Lime when expos'd to the Air for some time, retains its Heat no longer, because it has by little and little absorbed too small a Quantity of Humidity at a time, for producing a Friction capable of exciting Heat.

Quick Lime, which contains Particles of Fire, as well as our Powder, does not produce Heat by the Humidity of the Air alone, as our Powder does, but it must be moistened by throwing Water on it before it has the same Degree of Heat. The Reason of this is, because the Lime does not, like our Powder, contain a Salt capable of absorbing a great deal of humid Air at a time, the violent Rushing in of which might produce Heat; but Water, when thrown upon it, rushes into it suddenly enough to produce the same Effect.

And the Reason why quick Lime does not, like our Powder, produce a Flame, tho' it contracts as great a Heat, is, because in quick Lime there is no oily Matter capable of being kindled by the Heat excited, as there is in our Powder; but if an Oil be artificially mix'd with quick Lime, it kindles in the same Manner.

We said before, that a free Light spoils this Powder, tho' shut up in a glass Vessel well stop'd. The Reason of this is, that the Friction produced by the Rushing in of the Humidity of the Air, is not the only Cause of a Heat capable of kindling the Oil contain'd in our Powder: The Particles of Fire which it has retained in its Pores, contribute also something to that Effect: And as in the Day-time when the Matter of the Light always in great Motion perpetually strikes the Powder through the Glass, it disengages by little and little that Fire which had been lodg'd in it during Calcination; and diminishes it so much, that at last there remains no more of it to join the Heat produced by the Friction of the Air's Humidity, and is consequently render'd incapable of kindling. *Mr. Homberg, Mem. de l'Acad. Roy. des Sciences, Ann. 1711.*

An Account of different Substances, which, join'd with Alum, make a Phosphorus. By M. Lemery.

M. Homberg having given us, in the Memoires of 1711, a Description of a new Phosphorus, made with Alum and human Ordure, which being expos'd to the Air shone as well by Day as by Night, and set on Fire every combustible Matter that came near it, and needed not to be rubb'd or chafed like what is made of Urine by Distillation, it put me upon examining whether there were no other sulphureous Matters capable of producing the same Effects in Conjunction with Alum.

My first Operation was upon Urine, whence, I thought, agreeable to Mr. Homberg's Opinion, the greatest Quantity of Phosphorus could be extract'd by a well known Method. I evaporated then a good Quantity of Urine to the Consistence of thick Honey: Of this I took four Ounces, which I mix'd with the like Weight of Roch-Alum pulveris'd in an Iron Pan over a small Fire, to consume the Humidity, continually stirring and breaking it till it was perfectly dry; and when it was cool, I reduced it to Powder, and kept it in a dry Place.

After this I put it in a small Matrafs, of which it took up a third Part, and stopp'd the Neck with a Stopple of Paper. I then took a Crucible, of the Depth of four or five Fingers, in the Bottom of which I put a little Sand, and placed the Matrafs upon it, and surrounded the rest of the Matrafs with Sand. This done, I placed the Crucible in a little Stove, and made a Fire about it of one Degree of Heat for half an Hour. When the Vessel was hot, I augmented the Fire till the Matter grew red, which took up about an Hour and a Quarter. Then I let the Fire go out, and stopp'd the Bottle very well with a Cork, taking care however to let it cool by Degrees before I quite clos'd it, lest the Vessel should burst, which indeed once happen'd, when having stopp'd my Matrafs too soon, the rarefy'd Vapour which continu'd to ascend from the Matter, finding no Vent by the Neck, burst a Hole in the Bottom of the Matrafs, and moreover destroy'd in a manner the Shape of the Vessel, which being pretty thin, the sooner gave way to the Efforts of the Vapour.

When the Matter was cool enough, I poured it upon a Paper, and it neither burn'd nor so much as heated it. It was of a grey Colour.

The same Process serv'd for all the other Substances I try'd afterwards. Blood with an equal Quantity of Alum made a Phosphorus that kindled pretty quick.

The Yolk of an Egg, manag'd in the same manner, made a very good Phosphorus, but the White did nothing at all.

Cantharides, and Earth-worms, did not succeed very well.

Beef, Mutton, Veal, chopp'd and pounded long enough to make them pass through a Sieve, and mix'd with an equal Quantity of Alum, produced a Phosphorus like that of Blood.

Among animal Substances, Urine, and the White of an Egg, being the only ones that would not serve for a Phosphorus with an equal Quantity of Alum, I try'd what double the Quantity of Alum would do, but without Success.

Afterwards I made Trials whether those Phosphori, which had succeeded with an equal Quantity of Alum, would succeed with double the same; in which Procedure Blood, the Yolk of an Egg, the several sorts of Flesh before-mentioned, Flies, and Worms, made a Phosphorus, which seemed to me to kindle quicker than when I used an equal Quantity of Alum: This gave me the Curiosity to augment by Degrees the Quantity of Alum.

I observ'd, that six Parts of Alum to one Part of the sulphureous Substances before-mention'd made a Phosphorus that burnt more briskly than those of the preceding Trials. Seven Parts of Alum did as well as six; but eight had scarce any Strength at all, and would not kindle but when it was hot, and just taken out of the Fire; and two or three Hours after it was made, would do nothing at all; whereas the others kept their Virtues above eight Days, provided they were well stopp'd.

Ten Parts of Alum to one of those sulphureous Substances never made any Phosphorus: Urine, and the White of an Egg, never succeeded with any Proportions of Alum which produc'd Phosphorus with other Matters.

From Animals I pass'd to Vegetables, and began with Seeds. The Flour of Wheat, Barley, and Rye, would not kindle with equal Quantities of Alum, as did the animal Substances; but from double to seven times the Quantity of Alum, the Phosphorus kindled better and better, and burnt almost as well as that made of Blood, or the Yolk of an Egg.

Honey likewise did nothing with an equal Quantity, but succeeded very well with six Parts of Alum.

The Leaves of Rosemary, Baum, and Senna, made a Phosphorus with two, three, and four Parts of Alum, but did nothing with five or six; but their Phosphorus did not hold long, and had no good Effect, but when it was a little hot: That of Senna seem'd stronger than the others.

Flowers with three and four Parts of Alum kindled well, especially Roses.

Woods of Sassafras and Guaiacum afforded a Phosphorus: But it must be observ'd, that in order to extract one from these Woods, the Fire must not be so great as for other Substances; without this Precaution you will obtain nothing.

The Roots of Orris and Rhubarb did not kindle well but with two or three Parts of Alum, and succeeded not with more.

As the Phosphorus is made by means of the oily Substance contained in those Bodies, I imagin'd that the Oils separated from the other Principles, might, as well as the other Substances above-mentioned, make a Phosphorus. But I found a great Difference, for they produced nothing with an equal, double, or triple Quantity of Alum; and though, by gradually increasing, five Parts of Alum to one of these Oils afforded a Phosphorus, yet it was very languid in Comparison of one extract'd from Animals and Seeds. What was particular, they kindled with ten Parts of Alum, which other Matters would not do. 'Tis true, ten Parts of Alum to one did not make so good a Phosphorus as five to one. The Oils I made use of were those of sweet Almonds, Olives, Guaiacum, and Hartshorn; of these the two last did best.

After this I divert'd my Operations to Minerals and Metals, as Iron, common Sulphur, Antimony, golden Sulphur of Antimony, and some others. I mix'd them with different Proportions of Alum, but not one of them produced any Flame, nor so much as Heat; whence it appears, that to make such a Phosphorus as M. Homberg's, we must have recourse to animal and vegetable Substances.

I shall next examine, whether any other Salt may be substituted instead of Alum, in order to make this Phosphorus.

By the different Analysis of Salts that are known to us, it appears, that the Acid of Vitriol, common Sulphur, and Alum, are of the same Nature, I had therefore a Mind to try if one of these might not be substituted for the other. And as M. Homberg had observ'd, that he had rare Success with Colcothar, I fancy'd that Vitriol, which is much more pregnant with Acids, might have more Effect: I used it then after the same manner as I did Alum, but to no Purpose; I could never make any thing even of Colcothar, whatever Trials I made. Perhaps I was wanting in some Circumstances, having several times experienc'd, that the Success of some Operations which

which I made on Vegetables, often depended either upon a little Variation of the Fire, or the Quantity of Alum.

I next try'd Salt of Sulphur, which is known to be an artificial Salt, compounded of the Acid of Sulphur, incorporated into the Pores of Salt of Tartar, but with the same Success. Sea-salt, Crystals of Tartar, Borax, vitriolated Tartar, and Salt of Tartar, mix'd in different Proportions with these Substances, had no Effect.

Saltpetre in our Operation did as it uses to do when mix'd with other oily Substances; that is, when the Matter has been warmed, it flew out of the Matrafs with a great Noise and Detonation, and consequently no Phosphorus was to be made of it: But if to a Phosphorus made with Alum, and just on the Point of kindling, you add Saltpetre well dry'd, at the rate of two Drams to half an Ounce of Matter, which you may mix together very well in the Matrafs; after it is close stopp'd, you will find, that being pour'd upon Paper, the Phosphorus will burn with much greater Strength, than it did before it was mix'd with the Sulphur.

Lastly, I was willing to see if Acids, disengag'd from their earthy or metallic Parts, as they actually are in Spirits of Nitre, of Salt, and of Vitriol, would succeed better than the concreted Salts from whence these Spirits were extracted; but all these, together with the Spirit of Alum itself, had no better Success than the Salts before-mention'd. *Memoires de l'Acad. Roy. des Scienc. 1714.*

Though a vast Variety of oily Substances are proper to enter the Composition of M. Hemberg's Phosphorus, yet no other acid Mineral is necessary to be join'd, than what that Gentleman only used, which is Alum. We shall give a general Idea of this Phosphorus, which is of such a Nature, as at all Times, and without any Assistance, to be kindled by Air alone. For the better understanding how this is to be effected, we shall make use of two known Phosphori. The first which has not the Name, and but imperfectly the Nature, is Lime: It is full of an Infinity of fiery Particles, introduc'd by Calcination, and imprison'd in an Infinity of little Cells. This Matter, being extremely dry, greedily receives the Water poured on it; and the Water impetuously penetrating and opening the Prisons of these Particles of Fire, frees them, and so causes an Effervescence, and a very sensible Heat, over all the Substance of the Lime. This Water kindles this kind of Phosphorus, not by itself, but by the Liberty of Action which it procures to the Particles of Fire.

The second Phosphorus is the essential Oils of Indian aromatic Plants, which kindle into a Flame as soon as you pour on them acid Spirits well dephlegmated.

In these two Phosphori the Water does not act immediately of itself. In the first we have already prov'd it; in the second, the Acids alone act on the Oil, which is almost entirely void of them; and the Phlegm or Water, in which these Acids swim, is no more than their Vehicle. This second Phosphorus only burns, because there is nothing but Sulphurs or Oils that will burn, of which there are none in the Lime; and Oils themselves will not burn, but when they are animated by some Acid. Common Sulphur wholly depriv'd of it would not burn. We are certain then, that an oily Matter, whose Acids are separated from it, will be set on Flame, as soon as Acids of a good Degree of Purity shall come upon it, so as to penetrate it with Violence.

But if you would have the Matter be kindled by the Air only, the Air will not furnish the necessary Acids; for it either contains them not, or not in a Body strong enough for the Purpose. The Acids then must be contained in the oily Matter of the Phosphorus, but in such a manner, as not to be intimately united with it, but only, as it were, mixed with it by small separate Parcels, so as to want a more perfect Union.

For this End the Acids must be for the present shut up in their little Cells, but in so loose a manner, that the least Shock will dislodge them, and make way for their sudden Irruption into the oily Matter, and Penetration into its most intimate Parts. To this Purpose the Air will be sufficient, not of itself, but by the aqueous Humidity it contains, that is, by the very small Parcels of Water, which, by dissolving the Acids that are proportion'd to them, put them on Action. This subtle and invisible Water works the same Effect in this Phosphorus, that the gross and common Water did in the two others of which we have spoken; for besides putting the Acids in Action, it also disengages the Particles of Fire which the new Phosphorus requires in the Operation.

Here you have the System of this Phosphorus: It is no easy Matter to prove by Ratiocination, that such a thing is possible to be effected; but as we know by Experience, that it is actually so, these are probably the Principles of its Formation.

Hence we see of what a delicate Nature it is, and how the Circumstances on which it depends ought to be just, and the Quantities of Ingredients nicely proportion'd: For Example, that the oily Matter, which must be deprived of its Acids, and the concrete Salt, which is to supply the Acids, might be cal-

cined together, there is nothing but Alum which can be that concrete Salt, which in spite of Calcination preserves a Quantity of Acids necessary for the Effects of a Phosphorus, and also keeps them as loosely confined in their Cells, as the Matter requires. This depends almost upon an indivisible Point. The oily Matter having lost its Acids, which were carry'd off by the Fire of the Calcination, there remain their forsaken Cells, and it is the Alkali which absorbs the new supervening Acids: Wherefore, that there might be a sufficient Supply to fill these Cells, and to penetrate the oily Substance, it is necessary that the Quantity of Alum be exactly proportion'd to the particular Nature of the oily Matter. The more Alkali or fixed Salts remain after Calcination, the greater is to be the Quantity of Alum; for which Reason animal Oils, which have less fixed Salt than Vegetables, need a less Quantity of Alum. *Hist. de l'Acad. Roy. des Scienc. 1715.*

M. Boulduc, resolving to make an Examen of *Ebsom* salt, was immediately inclined to think, by some Marks, and especially the Swelling of that Salt, when it is begun to be distilled, in which it altogether resembles calcined Alum, that it participated much of an aluminous Nature; to discover which, he made continual Operations upon Alum combined with other different saline Substances. What succeeded best was Salt of Tartar, or Oil of Tartar *per Deliquium*.

Alum is an acid Spirit, which is impregnated in the Bowels of the Earth with earthy and alkaline Particles, enough to make it a concrete Salt. Now Salt of Tartar, pour'd on a Solution of Alum, being a more powerful Alkali than the earthy Matter united with the Acid of Alum, forces them to separate, and the Earth of the Alum precipitates, and there is a new Union of the Acid of Alum, with the Alkali of Tartar, whence results a new concrete Salt, entirely divested of its earthy Matter.

After M. Boulduc had made several Trials, and given his Salt all the Perfection he was able to do, he found it in all respects resembling that of *Ebsom*, only not quite so bitter, but the Difference was too inconsiderable to be regarded. But this Salt of M. Boulduc had the Advantage of being discharged of its earthy Part, which the other wanted; for when mixed with the Oil of Tartar, it precipitated a white and earthy Matter, like what was precipitated from Alum after the like Mixture, and even somewhat more in Quantity. M. Boulduc, who thought himself the Inventor of this Preparation of Alum with Salt of Tartar, found it afterwards in Hartman. *Hist. de l'Acad. Roy. des Scienc. 1718.*

M. Geoffroy discover'd, that the Basis of Alum was a Bolar Earth dissolv'd by an Acid.

Boles are a sort of fat, soft, brittle Earth. The Pieces of Pipes in Holland which are made of these sorts of Earth, and the Fragments of our common Pottery-ware, which imbibe a good deal of Acid, because the Fire which bak'd them, open'd their Pores, afforded true Crystals of Alum: And it is further observable, that these Pipes, at the End of two Years, shot forth fine Threads like those of plumose Alum, which grew and vegetated in the Air. *Histoire de l'Academi. Royale des Sciences, 1728.*

M. Geoffroy, before quoted, says, That

Besides those Mines which contain Sulphur, Vitriol, and Alum, there are some purely of Alum. They who have hitherto written upon that Salt, have told us, that the Base which coagulates the vitriolic Acid, is a white Earth not vitrifiable, and of the same Nature as Chalk.

I have prov'd by Experiments, says he, that this Earth is dispersed and mixed in very many Substances, and especially in Boles and Clays that are bak'd, since they have all afforded me, with the Acid of Sulphur, or the Acid of Vitriol, that Salt [Alum] which I had a Mind to imitate: It is no longer surprising then, that there should be Glass which produced Alum, since it inclosed Matter capable of forming it, as soon as the vitriolic Acid should have Strength to make its Way between the Laminæ of the Glass, where that Earth was lodged, in order to join it.

My Experiment for producing Alum, that best succeeded, was thus managed: I took some of our common Potters Vessels that were not varnished, but porous and brittle, and sprinkled them with Spirit of Sulphur, and they imbib'd it more perfectly than Earths not baked, because their Pores are more open. They fermented slightly with this Spirit, which in the Digestion became mucilaginous; and that Mucilage, being exposed to the Air, produced Crystals of Alum, which increased by Degrees, and took the most exact Figure that was possible for that Salt to have. *Memoires de l'Acad. Roy. de Sci. 1728.*

The factitious Alum is distinguished only by the Countries where it is made, into a great many different kinds; and if it is in large Masses, like Rocks, it is termed Rock or Roch-Alum; and if it looks like the Fragments of Ice, it is termed Glacial, or Icy-Alum. Factitious Alum was entirely unknown to the Antients, but with us is the only kind in Use; for we now know very little of the natural kind, which were formerly so common.

common. M. *Tournefort* found two Species of natural Alum in the Island *Milos*, or *Milo*; one was in *Strata*, or *Crusts*, of an astringent Taste, and an Ash-colour, covered with some filamentary Efflorescences, which smelled like *Aqua fortis*, but not near so strongly: The other was the capillaceous or filamentary kind, or true *Alumen Plumosum*; it was in small Pieces, of the Thickness and Length of a Man's Finger, and might, by beginning at the Ends, be easily divided into small greyish Filaments, resembling a Tuft, or Pencil; it was soluble in Water, and melted in the Fire; and of an astringent Taste. Even in *Dioscorides's* Time, this Alum seems to be confounded with the *Lapis Amiantus*; for that Author, talking of the Scissile-Alum, observes, that there was a Stone very like it, and that the way to distinguish them was by the astringent Taste of the Alum, which the Stone had not: And he might have added, That it could not be melted by Fire, nor dissolved in Water. The History of Medicines being afterwards quite lost in the Ages of Ignorance and Darkness, the Name of the Salt was given to the Stone, and from thence it is, that it is still found thus mistaken in some Dispensatories.

Alum is a strong, astringent, acid Drier: The native Alum smells a little like *Aqua fortis*, but the factitious has little or no Smell; when thrown upon live Coals, it rises in Bubbles, and melts in Water. The Crystals of Alum have eight Sides, representing an hexagonal Pyramid, with the Angles cut off, or they are bounded by four hexagonal and four triangular Surfaces. A Solution of Alum coagulates Milk; turns the Tincture of Heliotropium purple, makes no Alteration in the Solution of corrosive Sublimate, turns the Infusion of Galls turbid and whitish; with Salt of Tartar it concretes into a white Coagulum, without any sensible Heat or Smoak; and often upon mixing this Solution with Oil of Tartar, an urinous Smell is perceived; but this happens only when the Alum has been purified with Urine, as in the *English Alum*; but there is no such Smell in the *Roman*.

In Fluxes of Blood Alum may be used inwardly, in the following manner:

Take Rock-Alum, a Dram; Plantane, and Knot-grass Water, of each three Ounces: Add to the Solution, Syrup of White-thorn, an Ounce: For a Julep, to be taken by Spoonfuls. Or,

Take of pure Rock-Alum, two Ounces: Melt it over the Fire, adding, in the mean time, of the finest Powder of Dragon's-blood, half an Ounce; and make this Mixture, before it grows hard, into Pills as big as a small Pea. The Dose is from a Scruple to a Dram, every four Hours; till the Flux is stopped, and then once or twice a Day for some Days afterwards. After every Dose, the Patient ought to drink a large Draught of some proper Liquor; but great Care is to be taken not to stop the Flux unseasonably, and therefore Bleeding ought to go both before and after it; and Clysters ought likewise to be administered, from time to time, to prevent Costiveness, which commonly follows on taking this Medicine. *Geoffroy*.

Something different from this, in the Proportion of the Ingredients, is that Pulvis Stypticus mention'd by Dr. *Alexander Thompson*, of *Montrose*, in the following Dissertation:

Scribonius Largus, the *Roman* Empiric, made use of simple Alum in the Evacuations of the Sex exceeding their due Bounds; and I have been told by Ladies, that it has very good Effects.

Helvetius improved on this, by adding Sanguis Draconis, whether as a Larva, to make it his own, or to prevent the Uneasiness of the Stomach, which he might suspect the Alum might give, I can't determine: But Dr. *Pitcairn*, whose Memory must continue as long as Physic is known, was the first who introduced the Use of it into this Country; at least, it was he who first desired me to make Experience of it in a Case which had resisted a great many other Medicines. Its Reputation kept up many Years, under the Name of Pulvis Helvetii, as an Astringent, especially in uterine Hæmorrhages; and I see it inserted in the *Edinburgh Pharmacopœia*, by the Name of Pulvis Stypticus, tho' in some different Proportion, and different Manner of preparing, from what I have commonly used. The Dispensary Powder being prepared of a double Quantity of Alum to one of the Gum, and made into a Powder, without being put near to the Fire, whereas what I have used was equal Parts of both, the Alum being first melted in a Crucible, and the Powder of the Sanguis Draconis added to it, and then powdered together in a Mortar, possibly the Difference of their Effects may, notwithstanding, be very little.

The Use of both, I think, is now much laid aside, which I cannot but regret, since I never found any Medicine (and I have tried several) so much to be depended on in all the ute-

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line Hæmorrhages; whether to correct the too frequent Return of the Menfes, or their too great Abundance; to stop the Flooding which Women with Child are so subject to, or to moderate the Flow of too plentiful Lochia. I have tried it in so many Cases with Success, that it would be altogether tedious to give you their Histories.

The Quantity I give of the Pulv. Helvetii is more or less according to the Exigencies of the Patient. In violent Bloodings I give half a Dram every half Hour, and seldom or never miss to stop it before three Drams, or half an Ounce, is taken.

The Success of this Medicine, in these bloody Evacuations, has encouraged me to prescribe it also in the Fluor Albus, that obstinate, pernicious Disease of the Sex, in which I have been surpris'd at its good Effects. *Edinburgh Medical Essays*, Vol. 4. p. 38.

When it is proper to prevent or check a beginning Desfluxion in a Quinsy, Gargles may be made with Alum, in this manner:

Take Red-rose Leaves, and Alum in Crystals, of each a Dram: Boil them in eight Ounces of Plantane Water; and in the strained Liquor dissolve an Ounce of Syrup of Mulberries, for a Gargle.

In Inflammations of the Eyes, the following Collyrium is excellent:

Let the White of an Egg be shaken or beat with a Piece of Alum, till it acquires the Consistence of an Ointment: Spread this upon a Linen Rag, and lay it warm to the Eyes.

Riverius orders this Collyrium to be taken off after two Hours, lest it should by its Astringency so far contract the Vessels, as to fix the obstructed Fluids in them. Some Physicians are of Opinion, that repellent and astringent Collyriums should not be applied to inflamed Eyes immediately after the Inflammation appears, lest the Fluids still in Motion should be fixed in the affected Part, and thereby the Obstruction be increased; but except the Motion of the Fluids toward the inflamed Part be very violent, this Precaution is unnecessary; and, on the contrary, by increasing the Strength and Contraction of the Vessels, these Applications enable them to resist the Force of the Fluids, whilst at the same time other proper Means are to be used to divert their Course another Way, such as Bleeding, Blistering, Purging, Cupping, and the like: Besides, if we stay till the Quantity of the obstructed Fluid is very much increased, it is in vain to think of applying Astringents, which would serve only to condense them more, and prevent their being resolved. In scorbutic Disorders of the Gums, the following Wash is very proper:

Take of Camphire, an Ounce; Crystal-Alum, two Ounces; Sugar-candy, four Ounces; French Brandy, a Quart: Let them stand in a quiet Place for two Days, and then strain off the Liquor, and keep it for Use.

Alum is by some reckoned a great Specific in Intermitting Fevers, when prepared in this manner:

First calcine it in an open Fire; and while it is still hot, throw it into Vinegar, and let it dissolve; evaporate the Solution, and beautiful Crystals will be formed. It is to be taken from a Scruple to a Dram, in a proper Vehicle, before the Fit.

The usual Preparations of Alum are, Purification, Distillation, and Ustion or Calcination: It is purified by being dissolved in fair Water, and then by evaporating and crystallizing that Solution in the common manner. It is distilled like Vitriol, and the first thing that comes over is an insipid Phlegm, then an acid Spirit nearly the same with Spirit of Vitriol. What remains in the Retort is a white, light, friable Substance, called Burnt-Alum; being Alum deprived of its Phlegm, and some Portion of its Acid, and by a new Solution and Evaporation, it will run into Crystals, as before Distillation. The Phlegm of Alum would be perfectly useless if pure; but as it contains always some Portion of the Acid, and some Alum also, which sticks in the Neck of the Retort, it becomes a very useful external Application in chirurgical Cases, for moderating Inflammations, and drying Ulcers. One Dram of Alum dissolved in six Ounces of this Phlegm makes an Alum-water, which is an excellent Detergent for Wounds and Ulcers. The Spirit of Alum is used the same way as Spirit of Vitriol. Burnt-Alum eats away fungous Flesh, and is usefully sprinkled upon Linen, to absorb bad Smells arising from any Part of the Body. *Geoffroy*.

K k k k

Alum.

Alum is thus order'd to be burnt by the College :

Take any Quantity of Alum; put it into a new earthen Pot, and let it burn in it as long as it will bubble up, and raise any Steam : When it is cold, keep it for Use.

Pates has three Preparations of Alum : The first he calls

ALUMEN DULCE, Dulcify'd Alum.

Dissolve Alum in Water, and coagulate ; repeat this three times, that the Alum may be purify'd. This is also called Saccharum Aluminis; and is commended in Diseases of the Breast, especially if they take their Rise from mineral and subterraneous Exhalations. It gives Ease in the Tooth-ach, if applied to the Gums. The Dose is half a Scruple.

The second is called ALUMEN FERRUGUM, which he takes from *Mynficht* :

Dissolve three Ounces of Alum, in one Pint and an half of Carduus-water, sufficiently ting'd with Dragon's-blood, and strain'd, and then exhale till dry. The Dose one Scruple before the Fit comes on. It provokes Sweat.

The third he calls ALUMINATUM :

Take Lemon-juice, one Pint ; Alum, half an Ounce : Boil and skim them. This is of great Service in Redness of the Face, and Pustules, drinking in the mean time the CEREVISIA CATAPSORAS.

ALUNIBUR, (*Luna*) the Moon, or Silver. *Rulandus*.

ALUNSEL, (*Strilla*) a Drop. *Rulandus*.

ALUSAR, *Manna*. *Rulandus*.

ALUSIA, *ελασία*, from *α* Negative, and *λέω*, to wash. It signifies a Defect, or Neglect of washing.

ALUTA. It signifies a soft thin Leather, us'd to spread Plaisters upon. See SCUTOS.

ALVUS, the Belly in general ; but the Word is used by *Celsus* for the Belly relative to Stools, in much the same Sense that *κοιλία*, or *κοιλιν*, is us'd by *Hippocrates*, and the other Greek medicinal Writers. Thus *Celsus*, (*Lib. 2. Cap. 41.*) speaking of the bad Symptoms in Fevers, says, That when the Belly (*Alvus*) is entirely suppressed, that is, when there are no Stools, it is a bad Circumstance ; as it is also when the Belly is so loose in Fevers, that it will not suffer the Patient to rest in his Bed, provided what is discharg'd is very liquid, or white, or pale, or frothy : Moreover it portends Danger, if what is excreted is small, glutinous, smooth, white, and palish ; or if it is livid, or bilious, or bloody, or more than ordinarily offensive. Those Stools are also bad, which after long Fevers are sincere. See ACRAIOS.

The Antients had various cathartic Medicines, and were very attentive to keep the Belly loose in almost every Distemper. For this Purpose they prescribed black Hellebore, Polypody of the Oak, (*Filicula*) Squama Aris, called by the Greeks *λεπίς χαλκή*, and the Milk of the Sea-lettuce, which, dropped upon Bread, purges powerfully ; or they boiled the Milk of Asses, Cows, or Goats, with a little Salt, till it curdled ; and then taking away the Curd, prescribed the serous Part for a Draught.

But Medicines are generally hurtful to the Stomach, and therefore all Cathartics ought to have a Mixture of Aloes. If the Belly be vehemently loose, or is too much purg'd, the Body is weaken'd ; therefore it is never right to prescribe Remedies, with that Intent, in any Distemper, except it be without a Fever ; as when we give black Hellebore to such as are afflicted with black Bile, [*atra Bilis*] or in that Species of Madness which is attended with Sorrow, or to those who are paralytic in any Part ; but where there is a Fever, and we would have the Belly loose, it is best to prescribe such Meats and Drinks as are both opening and nourishing ; and there are some Diseases in which purging with Milk is most proper.

The best Way of procuring Stools, is generally by Clysters, which *Aesclepiades* censur'd, but in such a manner, as not utterly to banish them out of Medicine ; but in the present Age they are much disused. However, it is best to use the same Moderation which that Physician seems to have followed, and neither to fatigue the Patient by frequent Clysters, nor to omit giving one, or two at the most, when the Case seems to require it ; as when the Head is heavy, in a Dulness of the Sight, and in a Disorder of the great Intestine, which the Greeks call *πῶλον* ; if there be a Pain in the Belly below the Navel, [*in imo Ventre*] or in the Hip ; if there be a Conflux of bilious Juices in the Stomach, or if Phlegm, or any watery Humour, infest that Part ; if there be a Difficulty of Breathing ; if there be

no spontaneous Motion to stool ; if the Fæces be near their Outlet, and yet stick in the Passage ; if the Breath of the Patient, who is bound, smell of the Excrements ; if what is voided be corrupt ; if Abstinence, first try'd, has not taken off the Fever ; if the Strength will not admit of bleeding when convenient, and the proper Time for it is elaps'd ; if the Patient drank freely before the Disorder happen'd ; if a Person becomes suddenly costive, who before was us'd to frequent Stools, spontaneously or accidentally. But this must be understood with these Limitations, that we do not administer a Clyster till the third Day ; nor whilst any Crudities subsist, nor to a Patient weak or exhausted by Sickness, or whose Belly discharges freely enough every Day, or whose Stools are of a liquid Consistence. We should also beware of giving a Clyster in the Violence of a febrile Paroxysm ; for what is then given passes not through the Belly, but is cast back, and flies up to the Head, with much greater Danger to the Patient. Abstinence is to be enjoin'd the Day before, that the Party may be the fitter to undergo the Operation ; and on the same Day, some Hours before the taking of it, warm Water is to be drank in order to moisten the upper Parts ; then a Clyster is to be injected of pure Water, if a slight Medicine will serve the Turn, or of Mulla, if something stronger be requir'd ; for a Lenient, take a Decoction of Fenugreek, Ptisan, or Mallows ; and for a Repressive, a Decoction of Vervain. Sea-water, or any other impregnated with Salt, is of an acrimonious Quality ; but its Acrimony is increased by an Addition of Oil, Nitre, or even Honey : The more acrimonious it is, the stronger is its Force, but the more difficult to be born. What is injected must be neither hot nor cold ; for either may do hurt. After Injection the Patient ought to keep in Bed as much as possible, and not be too hasty to give way to the first Motion, but go to the Stool when he can no longer contain it. Much after this manner are the superior Parts relieved, and the Violence of the Disease abated, by depriving it of the Matter that supports it : Moreover when the Patient has gone to the Stool as often as Necessity requir'd, and is pretty well exhausted, he ought to take a little Rest, and to eat something the same Day, that his Strength may not fail him ; but whether little or much is to be indulg'd, is to be regulated according to the more or less Apprehension we are under of the Approach of the Paroxysm. *Celsus, Lib. 2. Cap. 12.*

Purging the Belly [*Alvus dulcia*] often relaxes the Rigour of the superior Parts. *Celsus, Lib. 4. Cap. 3.*

Nothing more contributes to the Cure of Deafness, than a bilious State of this Part. *Celsus, Lib. 2. Cap. 8.*

Costiveness of the Belly for several Days together, indicates either a sudden Motion to stool, or a slight Attack of a Fever coming on. *Celsus, Lib. 2. Cap. 7.*

They who are of a loose Belly in their Youth, are generally costive in their old Age ; and they who are bound in Youth, are often loose when old. A laxer State in Youth, and rather bound than loose in old Age, is most desirable. *Celsus, Lib. 2. Cap. 3.*

Binders of the Belly are Labour, sitting in a Chair, Fullers-clay laid over the Body, Diminution of Food, and eating once a Day instead of twice, little drinking, and that only after a full Meal, Rest after Meals. On the contrary, Things which loosen the Belly are walking and eating more than usual, stirring after Meat, intermixing Draughts with eating. And it ought to be observed, that a Vomit binds a loose Belly, and loosens a bound one ; and that a Vomit taken immediately after Meat binds the Belly, but delay'd till a considerable time after loosens the same. *Celsus, Lib. 1. Cap. 3.*

The Belly various in its Excretions prognosticates Death ; as when it voids Strigments, (roapy Strings) Blood, Bile, green Excrements, sometimes at different Seasons, sometimes all together, and in a sort of Mixture, tho' distinct. But under these Symptoms Death may not be immediate, which however comes on precipitately, when the Excretions are liquid, and black, pale, or fat, and exceedingly foetid. *Celsus, Lib. 2. Cap. 6.*

A Whiting [*Afellus Marinus*] boiled with Dill, and season'd with a little Oil and Salt, cures all Diseases of the internal Parts, especially of the Belly when infested with acrimonious Humours. *Actius, Tetr. 1. Serm. 2. Cap. 184.*

In Wounds of the Head, a spontaneous Excretion from the Belly portends Death, but the contrary gives Hope of a Cure. *Cassii Problem. 11.*

If Constipation of the Belly occasion a Pain in the Head, let it be your principal Care, by a proper Diet, and mild Cathartics, to render it soluble. Of these there is great Variety, and among these Salt. If Costiveness be owing to viscid Humours, use the following Medicine :

Take of Sal Ammoniac, two Drams ; of Pepper, and Euphorbium, each a Dram : And give three or four Scruples, or two or four Drams, in an Egg, or in Ptisan, for a Dose.

If the Fault be not in the Viscosity of the Humours, make use of such Remedies as have Scammony for an Ingredient; the following, for Example:

Take of common Salt torrefy'd, three Drams; Pepper, two Drams; Scammony, a Dram. The Dose is a Cochlearium in an Egg, Bread, or in whatever you please.

These Salts are admirable for opening and purging the Belly, in the most gentle manner, without Gripping or Sickness. You may safely use these Medicines, and also those which have a Mixture of Euphorbium. But if the Belly is too loose, and the Head is in Pain by reason of a too great Dryness of the Habit, endeavour to restrain it by a proper Regimen, and proper Medicines. *Trallianus, Lib. 1. Cap. 11.*

Costiveness of the Belly is accompany'd with Heaviness of the Head, Vertigo, a Bitterness in the Mouth, with a Disrelish of, and Aversion to, Food. In this Case a Clyster gives immediate Relief; for it certainly very much concerns us, that the Belly should perform its Office. We meet with some who, at certain Seasons and Intervals, have the Benefit of spontaneous and copious Evacuations that way, and at the same time get rid of a Multitude of infesting Humours, whereby their Health is repaired. Others, by a plentiful Discharge, by vomiting of all sorts of Crudities, have prevented many threatening Disorders. But if these Evacuations don't happen at their usual Seasons, after they are grown into a Custom establish'd by Nature, many grievous Distempers usually come in their room. We ought, therefore, by all means, when these customary Excretions fail us, to be provided with the necessary Assistance of Art. The same Advice is no less proper with respect to stated Hæmorrhages by the Nose, or Hæmorrhoidal Veins; for if the Blood refrain its usual Course, without manifest Cause, either the Passages must be open'd for it, or its Redundancy diminished by breathing a Vein, except where a great deal of Exercise consumes, or Abstinence diminishes, the abounding Superfluity: For as too great and immoderate Evacuations render the Body weak and cold, and blunt the natural Faculties, so it is as certain, that the Retention of what ought to be eliminated and expell'd, depresses, clogs, and disturbs the Mind, and supplies Matter for Pains and Distempers to arise one out of another, which in Process of Time subvert the Strength, and dissolve the Fabric, of the Body. *Aëturius de Spir. Anim. Cap. 16.*

In all Fevers the Belly ought to be loose, unless Pus be evacuated, as it happens in Pleurifies, Peripneumonies, and Consumptions; for in these Cases, the greater the Evacuations, the worse is the State of the Patient. *Aëturius, Meth. Med. Lib. 3. Cap. 18.*

The Belly makes not salutary Excretions, when they are either too plentiful, or various and multiform. The Excretions offend in Quantity, when they bear too great a Proportion to the Aliment received; and the Cause of this is either a medicinal Quality in the Food, or some internal Disorder. When it proceeds from the former, it is easily remedy'd by Alteration of Diet; but when it is the Effect of some internal Affection, it must be either because the Body receives no Nourishment, or the Intestines are irritated by some Humour. The Body ceases to be nourished, and falls into an Atrophy, [*ἀτροφία*] either on account of its Dryness, or the Obstruction of the Passages, by which the Aliment is distributed over the Body. In this Case then we are to use such Medicines as are distinguish'd for their moistening Quality, in Conjunction with those that attenuate, and open, and cleanse the first Passages. But if some internal sharp Humour affect the Intestines, and still irritate them to the Expulsion of their Contents, we are directed to such Remedies as are best adapted to sweeten the Humours, and blunt their Acrimony. *Aëturius, Meth. Med. Lib. 4. Cap. 6.*

Excretions of the Belly, of the most approved sort, are soft, smooth, brown, or yellowish, and answering in Proportion to the Food received. When they transgress or change in these respects, they indicate an Alteration in the Temperament, either of the whole Body, or of the Stomach and Intestines. If the Temperament change to cold, the Excrements appear whiter, and more humid; if to Heat, they become of a redder or yellower Hue; if they fall short in Quantity, they are either dissipated by too much Exercise, or are diverted into the Urine: But if neither of these be the Cause of the Defect, it shews the Belly to be oppress'd with a Load of Excrements, and that it wants to be eased by a Suppository, or Clyster. If the Excretions are more than in Proportion to what is taken in at the Mouth, it indicates either, first, a less than usual Exercise and Motion of the Body, or an imperfect Distribution of the Aliment; or, lastly, shews the Stomach and Intestines to be infested with an acrimonious and stimulating Humour. In this Case, while the natural Colours continue to appear, there is no great Mischief to be apprehended; but Excrements of divers Colours, bloody, or like Abrasions, or

voided with Pain, and a Tenesmus, portend more grievous Disorders. One thing here especially deserves our Consideration, that in all Evacuations, whether spontaneous, or procured by Art, if nothing be carry'd off, but what Expediency requires, Nature bears it well, and is refresh'd thereby; but the contrary Management will be sure to produce an answerable Effect. *Aëturius de Spir. Anim. Cap. 14.*

When more Food is taken into the Stomach than can well be concocted, Plenty of liquid and whitish Excretions are made, and sometimes a sort of Looseness succeeds, during which some of the Contents of the Stools remain as they were from the Beginning; others alter their Colour, either into a better, which denotes Concoction, or into a yellow, accompany'd with liquid and bilious Excretions. All this while the Body feels little or no Inconvenience; for when the expulsive Faculty is irritated, and hastens to discharge itself of infesting Humours, it takes this Opportunity of a Looseness, to expel, besides Crudities, whatever is noxious: Wherefore we ought to be very careful, lest, while we inconsiderately labour to restrain the Violence of the Looseness, we put a Stop to the Current of a Humour which Nature endeavours to discharge. Further, it is to be observ'd, that sometimes the Humours conspire to bring on a Cholera-Morbus, and discharge themselves sometimes both ways, sometimes only downwards, by Excretions of an aqueous and bilious Matter, [*ὑδατόχολα*] which, if suffer'd to continue long without Help, bring on a Weakness and Lowness of Spirits, and even a Coldness and Syncope. The whitish, milky, and incoherent Contents of the Stools, denote the great Weakness of the digestive and alterative Faculty, from too great a Refrigeration, as the brownish and yellow always proceed from a Redundancy of Bile, occasion'd by an immoderate Heat. Sometimes the Excrements are white and consistent, like those of Dogs, but not often, nor in Abundance. The same thing happens in a Looseness, and is a Sign of the Obstruction of the biliary Duct that leads to the Stomach; whence the Urine generally becomes bilious, the Bile being diverted that way, and is also very often discharg'd by vomiting. But such Excretions are principally incident to those afflicted with the Yellow-jaundice, because the Bile, which should colour them, is diverted to the Skin. Moreover the yellow, with the brown and reddish, receive their Dye from yellow and red Bile, as the æruginous, porraceous, and the cabbage-colour'd, proceed from one kind or other of the same Humour. Black Excrements sometimes are from over-heated and extravasated Blood, and sometimes from a deleterious Bile. Sometimes the Stools appear of various Colours, mix'd one among another, which is still worse than any before-mention'd, because it denotes the Violence and Strength of the Humours.

Now all those Humours which we have mention'd, if voided freely, and without Pain, and on the critical Day, after Concoction, and the Patient finds Relief from their Expulsion, are accounted salutary Signs in all respects; but if they proceed from contrary Causes, a contrary Judgment is to be formed: For a Fainting and Lowness of Spirits, Privation of Sense, and a Delirium, and sometimes sudden Death, are their Attendants.

With what has been said may be connected, that Disorder of the Stomach called the Celiac Passion, which is owing to the Intemperies of the Stomach. For when that Part happens to be affected with too much Heat or Cold, Dryness, or Moisture, and the Intemperies passes into the Habit, the Celiac Passion thence takes its Original. In this Disorder, the Patient is thirsty, and somewhat feverish, has yellow and brown Stools, and is refreshed by the Application of Coolers. Some are slow of Concoction, are seldom thirsty, and have crude Stools. They who suffer from an Excess of Humidity, are rack'd with Pain, and void nothing but a liquid and palish Excrement; but such as labour under this Disorder, through excessive Dryness, have small, but colliquative Excretions: These are more thirsty, and more difficult to cure, because they are more spent and wasted under the Distemper, by the exhausting of their natural Moisture. The Vomiting and Looseness together are very troublesome, and the Vitioussness of the Excretions are Matter of no small Concern; but their Quantity proves of the worst Consequence, because when more is excreted, than can well be spared, the natural Heat exhales at the same time; and the Body being exhausted and dry'd up by a too plentiful Evacuation, ceases to receive Nourishment. On the other Side, in a frequent Desire of going to stool, commonly called a Tenesmus, in a Diarrhoea, and what is vulgarly called an Hepatic Flux, or a Dysentery, or Lientery, it is not only the Quantity, but the Malignity, of the Matter excreted, that kills the Patient. For when the Bile becomes effervescent, and very acrimonious, and the Intestines subject to morbid Impressions, the bilious Humour corrodes and abrades them in its Passage; and if the Disorder be seated principally in the strait Intestine, it is called a Tenesmus, a Word that signifies *stretching*, because the affected Part is on the Stretch, and is perpetually urged to Excretion. In this continued and violent

violent Straining, there is nothing excreted but some mucous, bloody, liquid, and viscous Contents, which will hardly come away; so that by the repeated Labour of often going to stool, and rising from thence, the vehement Solicitation thereto, and the Tension of the Part, rather than by the Quantity evacuated, the Strength of the Patient is worn out.

If the Intestines are infested with an acrimonious Humour, it grates, and stimulates to Dejection, which Distemper is called a Dysentery. Here the Part affected is known by the Pain, which never leaves the Patient. If the Pain be felt below the Navel, the great Intestines are affected; if above, the Disorder lies in the small ones. In this Disease, if the Bile that comes away be not extremely bad, as in the porraceous, and the æruginous, (for the black in the Beginning is mortal) and if there be no great Fever, nor the Body full of putrid Humours, the Patient has not much to fear, especially if the Disease be seated below the Navel; but if the Case be otherwise, and the most remarkable Symptoms of the worst kind, the Patient is in great Danger. When the Distemper lies in the strait Intestine, the Excrements of the Aliment, and the Abrasions of the affected Part, are voided separately. But if the Disease be seated higher, the Superfluities of the Food, and the Abrasions from the distemper'd Part, come off mix'd together, and so much the more, in proportion to the higher Situation of the Malady. When the Colour and Consistence of the Excrements come nearly to those of a sound State, when the Pains are alleviated, and what comes off from the corroded Parts is less in Quantity, and of a better kind, as being voided at longer Intervals, the Physician may reasonably hope, that his Patient is out of Danger: But the contrary shews, that the Disease is exasperated. While the Distemper is moderate, the Abrasions are few, and but lightly tinged with Blood; and the Pains are remis, with long Intervals. If the Disorder increases, the Stools are for the most part bloody; but if it still rises to a greater Height, and the Intestines begin to be ulcerated, first, Blood comes away in Abundance, then carnos Abrasions, which are still larger as they grow worse, fetid, and of a Colour next to black. But the worst Symptom of all in this Case is, a Loathing of Food. Hence it is known, whether the Disease be of a malignant Nature, or otherwise.

A Dysentery commonly owes its Original to an inveterate Diarrhœa, or Dysentery, into which one of these degenerates, and is the more grievous, as it finds the Patient already debilitated and exhausted. The Nature of this Disease is known by its Name; for it levigates and lubricates the Intestines, so that they can by no means, tho' but for a short time, retain the Food. This Case nearly resembles theirs who labour under a Subversion of the Stomach, so that they can't retain what they eat, but are forc'd to throw it up, in which Disorder, if the Patient happen to be molested with acid Eructations, it is a good Sign, that the Stomach will come to itself, and resume the Exercise of its Office. *Actuar. Meth. Med. Lib. 1. Cap. 20.*

If the Food does not lie heavy upon the Stomach, nor incommode it by its acrid Qualities; and if the Substance and Faculties of the Stomach itself, and the Belly, be sound and vigorous, the Work of Concoction is perform'd in a light and easy manner, and none, or but very slight, and no way troublesome, Eructations attend. The Belly, which receives the Aliment after Concoction, not feeling the least Oppression, after it has assumed to itself the humid Part, at some reasonable Distance of Time, discharges itself of what is superfluous, without Pain, and with no great matter of Trouble. What is thus excreted, is of a soft, smooth, and slippery Contexture, and of a pale, or at least a yellowish, Colour, unless it has received another Tincture from the Aliments. But further it must be observ'd, that these Contents preserve some Agreement, both in Quantity and Quality, with the Food. For if the Things received by the Mouth, transgress the Bounds of Moderation in either of these respects; if the Organs appointed for the Preparation of Aliment be subverted, or corrupted, by Meats of undue Temperament, or bad Juice, many and various are the Disorders that will ensue.

An Oppression from too great a Quantity of Meat or Drink is usually succeeded by Vomiting or a Looseness; or, if it be not carry'd off by Vomiting or Urine, it hinders Concoction, and breeds Crudities. If the Food be endu'd with some Quality much beyond Moderation, as with Heat for Instance, there arises a biting or pricking Sensation, and Uneasiness in the Stomach and Intestines, Head-ach, with nidorous and unsavoury Eructations. If Cold be too predominant, Flatulencies are excited, and sour Eructations, or such as indicate the Quality of the Food; with a Fluctuation, and Pains in the Intestines about the Region of the Navel (σπῆλαι). All these Disorders are compos'd, and Matters set to Rights, by Vomiting, or a plentiful Stool, with a spare Diet on Meats of good Juice. *Actuar. Meth. Med. Lib. 1. Cap. 18.*

The Belly happens to be bound, when the Excrements are diverted another Way, or are otherwise disposed of. In this Case there usually succeeds a greater Plenty of Urine and Sweat,

and more is digested and carried off by insensible Perspiration: While this lasts, no Inconvenience is felt; since the Superfluities find a Vent, and no Damage, provided they return to their proper Chanel: But when the Belly is costive, and the Excrements find no other Canals, or Ways, to dispose of themselves, various Pains; and much Uneasiness afflict the Patient. For, in this Case, either the humid Part of the Fœces, that were first lodged, is exhaled, whence the rest is hardened; and the Intestines being lined with a tough and viscous Phlegm, the natural Passage is by that means stopped; or the expulsive Faculty languishes, and is too weak to perform its Office, either on account of its being inflamed, or from a Blow received, or the Confluence of some Humours. The Consequences of this Disorder are, an Aversion to Food, Pains in the Intestines, and moderate Eructations; which, at first, afford some Relief to the Patient. If the Disease continue long, the lower Parts grow cold, and the superior more hot, the Heat contracting itself; then arise fetid and unsavoury Eructations, which don't afford the same Relief as at first. In the Progress of the Distemper, the Food is vomited up, mixed with the Humours, and all Communication between the upper and lower Passages is cut off; whence, as the last Act of the Tragedy, the Excrements are voided by the Mouth, under which Symptom the Case is reckoned desperate. This Disease is called the Iliac Passion, (ιλιεΐς, Lat. *Convulsus*) from a Word which signifies to *roll together*, or *twist*; because the Orbs of the Intestines are rolled together, or twisted by it, from the Causes before related.

The Pains, Inflation, (μπινυμαλῶσις) and wringing Sensations, (σπῆλαι) which affect the great Intestine called the *Colon*, arise also from the forementioned Cause; or may be owing to the too frequent Use of cold and moist Eatables. For, by a cold Diet, Phlegm is accumulated in abundance, which is received into the Intestines, and especially into the Colon; because its Form and Situation particularly dispose it for such Reception. This Phlegm being burdensome, on account of its Quantity, and of a noxious Quality, and not easily making its Way through the Intestine, by reason of its viscous Property, stretches the Part, to the great Pain and Misery of the Patient, who sometimes throws up his Food mixed with the Humours, while nothing passes through the Body but with much Difficulty; however, after a copious Evacuation of Phlegm, by means of a Clyster, or some other Medicine, the Patient is relieved, and the Pain mitigated: But if the noxious Phlegm, being not purged off, should fix its Seat in the Hip or Bladder, a Sciatica or Dysury are formed. If the morbid Humours take their Course down toward the Feet, and affect them with their ill Qualities, and having once taken Possession, and paved their Way, the Affection passes into the Habit, and the Patient suffers on every Occasion. The Humours, which are rendered incapable of Expulsion by Purging, or Discussion of any kind, but discharge themselves upon the Hands and Feet, where they form the Gout in those Parts, are observed to be of a simple as well as a complicated Nature; but the Humour which, above all others, is best adapted to cause and maintain the Gout, is generated by a continued Coacervation of Crudities. For when Errors in Diet are every Day committed, and fresh Food is still thrown in upon Crudities, a crude Juice is bred between them; which not being, either by Art or good Fortune, expelled by Vomiting, nor finding a clear Passage through the Belly, sometimes lodges in the Colon, affecting the Part with those Pains which we call the Colic; sometimes is thrown upon the Hip, and causes the Sciatica; or on the Bladder, whence follows a Dysury, or Difficulty of Urine; or, in the last place, discharges itself upon the Extremities, where it forms the Gout in the Hands and Feet. *Actuar. Meth. Med. Lib. 1. Cap. 21.*

When the Belly is bound, either by binding Medicines or Diuretics, these Obstacles being removed with small Assistance, it returns to its Duty. The Remedies, in this Case, are only a Clyster or two, and a mollifying or loosening Diet; but if a Constipation of the Belly succeeds an Inflammation caused by a Wound of the Intestines, the Cure is not so easy. It must, however, be attempted by Emollients, and proper Dressings, I mean when the great Intestines are affected; for sometimes it happens to succeed; but a Wound in the small Intestines cuts off all Hopes of a Cure: If then any considerable Obstruction happens, or some Humour falls into the Intestines, whatever may be the Cause, the Belly is to be mollified by the daily Use of Clysters, which, in order to mitigate the Inflammation, are to consist principally of Emollients; such as Oils of Chamomile and Lilies, and Fats of a Hen, Goose, and Swine; with Herbs of a mollifying Quality, well and carefully boiled; for all such Medicines digest an Inflammation, relax the stretched Parts, and ease the Pain. The Distemper being thus mitigated, we are to betake ourselves to Remedies endued with more Acrimony, by which the Intestines being irritated, might discharge themselves of the hardened Fœces, together with any crude and pituitous Matters that might be mixed with them. The Passage being thus cleared, we may afterwards administer some gentle Cathartics. The Diet

Diet may be Hens, Rock-fish, and Broths of Chich-pease; and all Meats of a firm Consistence, and hard of Concoction, are to be forbidden: The Drink must be thin and cooling Wines.

If the Intestines are affected with an Inflammation, from an Influx of Humours, especially of a hot Kind, we must begin with Bleeding, and end with Clysters: The Diet must be the same as before, only a little more refrigerating, and less nourishing: The Medicines taken at the Mouth, are to be of fine Parts, and of an incisive and emollient Quality: To these, Stomachics are to be added, which, by restoring the Tone of the Stomach, may free it from the Necessity of lying unactive, and enable it to perform its Office to the Body. Fluctuations and Inflation are Affections of less Moment, but troublesome enough to the Patient; however, they may be mitigated by Injection of Clysters, and dry Fomentations with Millet or Bran. If the noxious Flatus will not yield to these Remedies, a dry Cupping-glass is to be affixed to the grieved Part. Discutient Remedies also, composed of the Carminative Seeds, are of Service here; and the Patient finds some speedy Relief from moderately heating Food, if taken in small Quantities: Bathing also, and moderate Walking, are esteemed beneficial.

When the great Intestine, called the *Colon*, is affected, many troublesome Symptoms attend the Disorder: In the Beginning of this Distemper all Food is forbidden, except Broths made on Chich-pease and Rock-fish, and mixed with Oil of the finest Parts, and prepared with Anise, Fennel, Dill, or others of the like Kind. The Belly also is to be loosened by Infusions of Mercury and Beets, or Centaury and Wild Cucumber, or with the Oils of Chamomile and Dill, and such-like. Those Antidotes also which go by the Name of *Colical*, are not to be omitted. When the Pain is remitted, you are to purge with Pills of Colocynth and Aloes, or such others as you think most suitable to the Condition of the Sick; and when the Disorder is over, let the Patient take some Chicken-broth, and afterwards go into the Bath.

If the noxious Humour takes its Course to the Bladder, or the Thigh, in the first Case it causes a Dysury, and in the latter the Sciatica: This Disease must be treated with Infusions of more acrimonious Simples, and with heating and discutient Plasters, and Cathartics, that properly purge such Humours: The Diet must incline to Heat; and Bathing must every Day be used, that the Humours may exhale.

If the Humour, by the Strength of the Parts, be driven out as far as the Feet, or thrown upon the Hands, there is formed what they call the Gout in the Feet or Hands; and here we are to consider whether the Humour be simple or complicated. In treating this Distemper, we are first to injoin Abstinence; the Belly is to be washed with Clysters, if it be needful; and Cereates of Oils and Fats are to be applied to the pained Parts. If the Gout be violent, it will be convenient for the Patient to go into the Bath. And because the Humours are very subject to a Conflux, and to renew their Excursions into the same Parts, they are to be cut short and restrained by a proper Diet; and the most predominant of them is to be carried off, or diminished by Purging, or corrected by suitable Food; and the Body is to be plied with much Exercise and Bathing. All Crudities are to be avoided, and Meats of bad Juice; for which End the Patient ought to rise from Meat with an Appetite, that the Concoction might be the more perfect; and Disruptions, which generate Crudities, restrained. *Aetnarius, Meth. Med. Lib. 4. Cap. 6.*

After these Quotations from *Aetnarius*, and those under the Article *Alimenta*, I need not inform the Reader, that *Aetnarius* is an admirable Author, and that he has shewn great Judgment, Genius, and Knowledge of his Profession, in making his Collections.

ALYCE, ἀλύκη, from ἀλύνω, to be anxious or uneasy. It signifies Anxiety, considered as a Symptom of a Fever, and is used by *Hippocrates* in much the same Sense as ALYSMOS. See ALYSMOS.

ALYPUM, ἄλυπον. A Plant called also ALYPIA, or ALYRON, from α Negative, and λύπη, Pain, *Herb-terrible*. In a Memoir sent from *Montpellier* to the Royal Academy of Sciences in 1712, Notice is taken of the Alypum of *Montpellier*, which is there said to be different from the Alypum of *Dioscorides*. But it should seem, by the Description of *Dioscorides* compared with that of more modern Authors, and the medicinal Virtues, that the ancient and modern Alypum is the same Plant. That the Reader may judge for himself, I shall insert the Accounts of it from *Pliny*, *Dioscorides*, *Ray*, *Dale*, and the above-quoted Memoir.

ALYPUM is a Plant with a slender Stalk and a soft Head, not unlike Beet, of an acrid and viscid Taste, and extremely biting and inflaming. Taken in Hydromel, with a little Salt, it proves a Cathartic. The least Dose is two Drachms, a moderate one four, and six the largest, in Cock-broth. *Pliny, Lib. 27. Cap. 4.*

ALYPUM is a spriggy Plant, reddish, with slender Sprays, and fine Leaves, and a thin soft Flower. Its Root is like that of Beet, slender, and full of an acrid Juice. The Seed is like

that of Epithymum. It grows in maritime Places, and, in particular, very plentifully on the Sea Coasts of *Lybia*; it is to be met with also in many other Places.

The Seed purges Black Bile downwards, being administered with an equal Quantity of Epithymum, and an Addition of Vinegar and Salt; but it causes a slight Exulceration in the Intestines. *Dioscorides, Lib. 4. Cap. 180.*

It is the same with *Alypias*, and is administered in Aqua Mulsa. *P. Aegineta, Lib. 7. Cap. 4.* The Dose is six Scruples. *Aetnarius, Lib. 5. Cap. 8.*

Alypum, Offic. *Alypum*, *Herba terribilis*, Mont. Ind. 36. *Alypum Montis Ceti*, Ger. 408. Emac. 506. *Alypum Montis Ceti*, sive *Herba terribilis Narbonensium*, Raii Hist. 11. 1443. *Alypum Monspeliensium*, Park. Theat. 198. *Alypum Monspelianum*, sive *Frutex terribilis*, J. B. 1. 598. *Frutex terribilis*, *Empetrum*, *Alypum Monspeliensium*, Chab. 48. *Thymelæa foliis acutis*, *Capitula Succisæ*, sive *Alypum Monspeliensium*, C. B. Pin. 463. *Jonf. Dendr.* 235. *Globularia fruticosa*, *Myrti folio tridentato*, Tourn. Inst. 467. *Elem. Bot.* 371. HERB-TER-RIBLE. *Dale.*

It is a Shrub a Cubit or a Cubit and half high, divided into many slender woody Branches, covered with a reddish, or dark-purple-coloured Bark, and covered with Leaves nearly of the same Colour, and about the Size, but not the Shape of the common Myrtle. For beginning from a very narrow Bottom, they continually widen almost to the Extremity, where they are sometimes marked with one or two Dents, making an obtuse Point. They are thick, solid, and of a bitterish Taste. The Flowers generally grow at the Ends of the Branches, and sometimes hang in Bunches to the Middle. They are of a purple Colour, and consist of thin Scales. According to *Clusius*, the Flower-cups grow single, and close to the Tops of the Sprays, and consist of Scales, and are about the Size of the inferior Orb of the Flowers of Scabious, or Devil's-bit, containing a hairy and lanuginous Flower of an azure Colour, inclining to white in the Middle, and wholly azure all round it. The Root is of a thick, hard, black, and woody Substance. The whole Plant (says *Lobel*) is bitter, and has the unpleasant Taste of the Spurge Laurel, or the Mezereon, and even a stronger, after six Years keeping.

It grows plentifully on the South-side of the Mountain *Cetus* in *Frontinac*, where it runs into the Sea; and on many other Declivities of *Languedoc* and *Provence*, that face the Sea and the South. We have observed it to grow, in great Plenty, on the Stony Hills about *St. Chamas*, a Town in *Provence*.

It is a very strong Cathartic, and purges Phlegm, Bile, and watery Humours, with no less Violence than Spurge (*Tithymalus*); and is therefore to be used with Caution. *Ray's Hist. Lib. 26. Cap. 8.*

It grows on Hills, flowers in the Spring, and the Herb is used. It is said to be a violent Purger. *Clusius* assures us, that the Decoction has been given with great Success in the *Lues Venerea*. *Dale.*

A L Y P U M.

Tho' the Plant now called by that Name be quite different from what *Dioscorides* described under the same Appellation, as all who have written since him are agreed, I chose rather to keep its Name entire, and to make use of that of *John Bauhine*, than to give it a new one, and so, by multiplying Names, to embroil Botany.

Caspar Bauhine, in his *Pinax*, calls it *Thymelæa foliis acutis*, *Capitula Succisæ*, sive *Alypum Monspeliensium*. *Clusius* has described it by the Name of *Hippoglossum Valentimum*; and M. *Tournefort*, in the sixth Section of his Institutions, has placed it under the Genus of *Globularia*, by the Name of *Globularia fruticosa*, *myrti folio tridentato*. But its Characters are quite different from those of the *Thymelæa*, or from any of the Species of *Hippoglossum*, or *Globularia*, as will appear by the following Description.

The *Alypum* is a Shrub about a Cubit high; its Root, which is covered with a blackish Bark, is about four or five Inches long, and near an Inch thick at the Neck, shooting forth three or four thick Fibres. The Branches, which are covered with a thin Pellicle of a brown-red Colour, are slender and brittle. The Leaves are of different Figures, and placed disorderly, sometimes in Tufts, sometimes single, or in Conjunction with another small one at their Bosom. Some of them pretty much resemble the Leaves of Myrrh; others, widening towards the Top, run out into three Points in the Shape of a Trident; others again form but one Point. The largest are about an Inch long, and three or four Lines broad, of a good Thickness, and of a bright Green. Each Branch bears a single Flower, seldom two, which are about an Inch in Diameter, and of a very fine violet Colour. They consist of two half Flowers, at whose Bottom arise a few small white Stamina, with little blackish Apices, which terminate in three Points, and are no more than about three Lines long, and one Line broad. Each half Flower bears an Embryo, which, after the Flower is gone, becomes a Seed, adorned with a kind of Tuft. The whole Flower is supported

ported by the Calyx, consisting of Leaves, lying one upon another like Scales, and no more than two or three Lines long and one broad.

Clusius relates, that *Empiricus* and *Mountebanks*, who strolled about in *Andalusia*, used the Decoction of this Plant for the Venereal Disease, and boasted of their never-failing Success. And we have Men of this Character in our Parts, who use it as a Cathartic, instead of *Senna*. But it were to be wished, that their Avarice might not be attended with these fatal Consequences to which the violent Operation of this Medicine naturally tends, and of which the Name of *Herb-terrible* ought to put them in mind. *Mem. de l' Acad. Roy. des Sci.* 1712.

By these Accounts of *HERB-TERRIBLE*, it should be the same as the *ἀλυσος*, or *Alysum* of *Dioscorides*, notwithstanding what the more modern Botanists have said.

I find this Plant sometimes called White Turbith.

ALYSMOS, *ἀλυσμος*, from *ἀλύω*, to be uneasy, or anxious. This Word is very frequently used by *Hippocrates*, to express that excessive Restlessness, and Anxiety, which many People feel in acute Disorders, or otherwise, and which will not permit them to remain long in the same Posture, but obliges them to be perpetually tossing about, in order to find an easy Situation; which, however, is not readily to be met with. Every one who has seen or felt the Thing, cannot help understanding what the *Alysmos* is by this Description.

Duretus distinguishes the *Alysmos*, into the *ἀλυσμος ναυτιώδης*, and the *ἀλυσμος αἰματικός*; the first is caused by a Sickness at the Stomach, by something contained in it which irritates; the second by an utter Oppression of the vital Powers.

But the *ALYSMOS*, or Restlessness and Anxiety, here spoken of, may be reduced to four different Species, two of which are Symptoms of a Fever, and two frequently happen without any febrile Disorder.

Those which happen without a Fever, are caused,

1. By something acrimonious contained in the Stomach, which irritates and stimulates the Nerves thereof, and consequently all the Nerves which are Branches of the same large Nerves, from whence the Nerves of the Stomach proceed. Hence the Contraction of the Heart is rendered irregular, and therefore the Circulation of the Blood thro' the pulmonary Arteries and Veins, and also thro' the Aorta, must labour, and be carried on with some Degree of Difficulty; whence a perpetual Uneasiness and Restlessness.

It is observable, that any thing which stimulates violently, and offends any of the Contents of the Abdomen, may, in some Degree, produce the same Effect. For a Sickness, and Inclination to vomit, are universally Symptoms which arise, when any of the Viscera, contained in the Abdomen, suffer an uneasy Sensation; as is remarkable in the obvious Example of the Gravel, or Stone, in the Kidneys, or Ureters.

When it proceeds from something acrimonious contained in the Stomach, the Cure consists in procuring its Discharge by Vomit, or other Evacuations; or in correcting the Acrimony by something of an opposite Quality; or in diluting plentifully.

But when it is caused by any Affections of the Abdominal Viscera, the original Distemper must be removed before the Symptom can be expected to cease.

2. The *ALYSMOS* is frequently caused by Spasmodic Contractions of the Viscera, arising from too large Quantities of fermenting, fermented, or fermentable Substances, taken into the Stomach; or from Hysterics.

For the Cure of that caused by fermenting Substances, see *CHOLERA MORBUS*; and of that caused by Hysterics, see *HYSTERICA*.

But the most general Species of this Restlessness, and Anxiety, attended with perpetual Tossings, and frequent Sighs, are those which attend Fevers, and inflammatory Disorders. These are immediately caused,

1. By some Impediment to the Blood's passing out of the Heart into the Aorta; but more frequently from its difficult Circulation thro' the Lungs.

The Blood is prevented from circulating freely through the Aorta, when the Obstructions in the several Branches thereof are become almost universal.

It is impeded from circulating thro' the Lungs, either when the Branches of the Pulmonary Artery are too dry, or affected too much by Spasmodic Contractions, to permit the Blood to pass readily through them; or when the Blood is in such an inflammatory or viscid State, as to be incapable of circulating through the Vessels of the Lungs.

These are attended with great Oppression at the Breast, a low Pulse, and Difficulty in Respiration.

2. These Anxieties arise, when, either from a Viscidity of the Blood, or a Stricture of the Branches of the *Vena Porta*, the Blood cannot pass freely through the Liver; hence that which is brought by the Celiac and Mesenteric Arteries, must stagnate, and distend the adjacent Parts.

This is attended with a great Weight and Oppression at the

Region of the Hypochondria; which Parts the wiser Antients had much greater regard to, than their less sagacious Posterity.

It is of infinite Importance, both to the Physician and Patient, to distinguish accurately the different Species of Anxiety above-mentioned, from each other; and to remove their Causes immediately, if that is, by any Ways, practicable. Those particularly which accompany Fevers, require our utmost Attention; for, if suffered to remain, fatal polyposse Concretions, Inflammations, and Gangrenes are soon excited, (and these near the Heart, provided the Causes reside in, or nearly affect, the Thorax) which are attended with intolerable Oppression and Restlessness.

But if the Branches of the *Vena Porta*, or those adjacent to them, are principally affected, sudden Gangrenes of the Parts about the Hypochondria, or Putrefactions of the Liver, are almost unavoidable, which terminate in a putrid Diarrhoea; in which the Stools are extremely offensive, and have the Appearance of Blood and Water, and these seldom or never fail to terminate in Death.

Hence the Reasons are evident, why this great Anxiety, and Restlessness, which *Hippocrates* calls *ἀλυσμος*, is, according to the Doctrine of that great Man, a fatal Symptom, when it happens in febrile and inflammatory Distempers; but is less dangerous when caused only by Hysterics, or the Irritations of something offensive to the Stomach: And why, in almost every Distemper, it is the immediate Fore-runner of Death.

Boerhaave lays down a very rational Method of obviating the ill Consequences of these febrile Anxieties, by removing their immediate Causes. This, according to his Doctrine, is to be done by resolving and diluting the Mass of Blood, by relaxing the Solids, and by moderating the too violent Motion of the circulating Fluids. This End is to be attained by drinking plentifully, and almost continually, warm Decoctions of the farinaceous Vegetables, rendered somewhat acid, and very slightly aromatic, with an Addition of Honey, or Nitre, or both.

Emollient, relaxing, and anodyne Cataplasms, Fomentations, Epithems, and Plasters, applied to the Region principally affected, are also of great Service, as they resolve and relax.

Frequently repeated Clysters, prepared of emollient Ingredients, without any Addition of Cathartics, given in small Quantities, and retained long, are of excellent Use, as they carry on the same salutary End.

The Vapour of hot Water, in which emollient Ingredients have been boiled, received at the Mouth and Nostrils almost continually, is of much Importance; especially when the Circulation thro' the Lungs is impeded, as it contributes to the Relaxation of the Part, and Resolution of the Juices.

ALYSSOIDES, a Plant thus named from *ἄλσος*, *Form*, and *ἀλυσσον*, *Alyssum*, as being like in Form to the *Alysum*.

The Characters of this Plant, according to *Miller*.

It hath a Flower in Form of a Cross, consisting of four Leaves, out of whose Flower-cup arises the Pointal, which afterwards becomes an elliptical thick Fruit, divided into two Cells by an intermediate Partition, which is parallel to the demi-elliptical turgid Valves, and filled with round flat Seeds, having Borders round them.

I do not find, that any Virtues are ascribed to this Plant.

Boerhaave mentions three Sorts of this Plant:

1. *Alyssoides saxatile Creticum, folio angulato, flore violaceo. Leucoium saxatile, folio viridi, flore purpureo eleganti, Cupani. Ind. 137. Alysson Creticum, foliis angulatis, flore violaceo, T. Cor. 15.*

Rocky, Cretic *Alyssoides*, with an angulated Leaf, and a violaceous Flower.

2. *Alyssoides incanum, foliis sinuatis, T. 218. Leucoium incanum, siliquis rotundis, C. B. Pin. 201. Leucoium, cum siliquis rotundis, flore luteo, J. B. 2. 931. Eruca peregrina, Clus. Hist. 421. Ic. & Desc. & Hist. 134. Leucoium marinum Patavinum, Lob. Obs. 180. Leucoium incanum, siliquis tumidis subrotundis, M. H. 2. 247. a, b.*

Hoary *Alyssoides*, with sinuated Leaves.

3. *Alyssoides fruticosum, leucii folio viridi, T. 218. b. Shrubby Alyssoides, with a green Stock-gilly-flower Leaf. To these Miller adds a fourth, which is, the Alyssoides orientalis annua, myagri sativi folio, Tourn. Cor. Oriental annual Alyssoides, with a Myagrum Leaf.*

ALYSSUM, *ἀλυσσον*, Madwort, from a Negative, and *λύω*; that particular Madness which is caused by the Bite of a mad Dog, and not from *ἀλύω*, as *Miller* derives it, nor from *ἀλύω*, according to *Lemery*.

There is a Sort of *Alysum* taken Notice of by *Dioscorides*, another by *Pliny*, and a third by *Galen*, which are thought by Botanists to be different from each other.

The *Alyssum* of *Galen* is thought, by *Dale*, to be the *Marrubium album, foliis profunde incis, flore caruleo* of *Morison*, (see *MARRUBIUM*) of which *Galen* speaks in these Terms:

Alysson is an Herb like Horehound, but has rougher and more prickly round Heads on the Tops of its Stalks. It bears a Flower inclining to an azure or sky-blue Colour. It ought

to be gathered in the Dog-days, and dried and sifted, that the Parts of Efficacy may not exhale.

The Dose to a Person bit by a mad Dog, is a Cochlearium (½ of a Pint) in a Quarter of a Pint of Water and Mullum, for forty Days together from the first Day; at least for the first seven Days. *Galen de Antidotis, L. 2. C. 11.*

It is of a moderately drying and digestive Quality, with something of Astringency, whence it clears the Skin from the Vitiligo and Sun-burns. *Galen de Simpl. Med. Lib. 6. Orib. Med. Coll. Lib. 15. Cap. 1. Paulus Aegineta, Lib. 7. Cap. 3.*

The Alyssum of *Pliny*, *Dale* takes to be the *Mollugo vulgarior* of *Parkinson*, Bastard-madder, (see *MOLLUGO*) of which *Pliny* speaks thus:

It differs from Madder (*Erythrodanum*) only in the Largeness of the Leaves and Branches, and took its Name on account of its preventing Madness from the Bite of a mad Dog, being drank in Vinegar, and bound to the Place. What they say further of it is wonderful indeed, that as soon as the wounded Person sees it, the Sanies of his Wound dries up. *Plin. Lib. 24. Cap. 12.*

The Characters of Alysson, according to *Miller*, are,
The Flowers consist of four Leaves, which are expanded in Form of a Cross: The Fruit is short and smooth, in which are contained many roundish Seeds.

Boerhaave, in his *Index*, takes Notice of twenty different Sorts of Alysson.

1. *Alysson Creticum saxatile, foliis undulatis incanis, T. Cor. 15.*

The Alysson of *Candia*, with hoary undulated Leaves.

2. *Alysson folio leucoli incano, flore luteo. Thlaspi Austriacum, leucoli folio incano, flore luteo. Bocc. H. Mauroc. 171.*

3. *Alysson incanum luteum, serpilli folio, majus, T. 217. Thlaspi Alysson dictum campestre majus, C. B. Pin. 107. M. H. 2. 291. Thlaspi minus quibusdam, aliis Alysson minus, J. B. 2. 928. Alyssum minimum, Clus. H. 133. a.*

Larger yellow hoary Madwort, with a Mother of Thyme Leaf.

Clusius's Figure is good; but he is mistaken in the Description of the Flower, which is tetrapetalous, and not pentapetalous, as he affirms: The Figure which *Lobel* and *Tabernaemontanus* have given of this Plant, under the Name of *Thlaspi Polygonati folio*, is bad: I believe they have put, thro' Inadvertency, *Polygonati* for *Polygoni folio*. The last of these Authors has given a second Figure of it, which is much better, and which he calls *Thlaspi minus Chypeatum* 2. The Difference of these Figures has determined *C. Bauhine* to divide this Plant into two Species, great and small; *Morison* has follow'd him in this Point. It is true that the Plant varies, according to the Place where it grows; but we must distinguish them no otherwise than as Varieties: For the Seed of the smaller, sown in Gardens, produces a pretty large Plant. *J. Bauhine* observes, that *Schwenkfeldius* confounds this Plant with the *Thlaspi angustifolium* of *Fuchs*, which is the *Nasturtium sylvestre Ussyridis folio*, *C. B. Pin. 105. Martyn's Tournefort.*

4. *Alysson incanum, serpilli folio, minus, T. 217. Thlaspi Alysson dictum, campestre minus, C. B. Pin. 107. M. H. 2. 291. a.*

Lesser hoary Madwort, with a Mother of Thyme Leaf.

This, in the Opinion of *Dale*, is the Alysson of *Dioscorides*, of which the last-mentioned Author gives the following Account:

The Alysson is a small Shrub, somewhat rough, with round Leaves, near which grows the Fruit like double Bucklers, which contains a flattish kind of Seed. It grows in Hills, and in rugged Places.

The Decoction, drank, cures the Hiccups that are not attendant on a Fever. It has the same Effect, if held in the Hand, or smelled to. Bruised with Honey, it cures Freckles, (οακύνε) and Sun-burning (ἑρήλια). Pounded and eaten with Food, it is thought to cure the Bite of a mad Dog; hung up in the House it is said to be a Preservative of Health, and an Amulet to Men and Beasts against Witchcraft. Besides it keeps off Distempers from Cattle, if tied about them in a red Cloth. *Dioscorides, Lib. 3. Cap. 105.*

This is but a Variety of the former.

5. *Alysson parvum, capitulis globosis, flosculis luteis. Thlaspi umbellatum Smyrnæum luteum. Volk. a.*

6. *Alyssum fruticosum incanum, T. 217. Thlaspi fruticosum incanum, C. B. Pin. 108. Thlaspi Machliniense incanum, Lob. Ic. 216. Clus. H. 132. Thlaspi capsulis sublongis, incanum, J. B. 2. 929. Thlaspi incanum, flore albo, capsulis oblongis, M. H. 2. 192. Thlaspi Alysson, folio leucoli, latissimo aspero viridi, Ind. 137.*

Hoary Shrub Madwort.

7. *Alysson fruticosum incanum, flore pleno.*

8. *Alysson halimi folio sempervirens, T. 217. Thlaspi halimi folio sempervirens, H. L. 594. Deser. 595. Ic. b.*

The Alysson with Sea-purslane Leaves.

9. *Alysson vulgare polygoni folio, caule nudo, T. 217. Bursa Pastoris minor, loculo oblongo, C. B. Pin. 108. Bursa Pastoria minima, oblongis siliquis, verna, loculo oblongo, J. B. 937. Parony-*

chia vulgaris, Dod: p. 112. Bursa pastoris minor, loculo oblongo; M. H. 2. 305.

Common Whitlow Grass.

It is very common on Walls, and in dry Places, in the Spring. *Dr. Dillenius* has observed very well, that the Petals are bifid, which is a singular Character in the Tribe to which it belongs.

This Plant appears to me very different from that which *Cæsalpinus* calls *Humilis quedam herbula affinis Bursa pastoris, foliolis Thymi rotundioribus candicantibus subhirsutis, &c.* He describes it to grow common in *Saxih*, and about *Piombino*. *C. Bauhine* was in the wrong to refer it to this, the Leaves of which vary in their Incisures; but are always very different from the Figure of those of Thyme: These Varieties are represented in the *Hist. Ludg.* The *Paronychia Alsine folio Lobelii* *Lugd.* represents them with Incisures: The same Leaves are cut in the Figure of the *Myosotis parva Dalechampi* *Lugd. 1318. Martyn's Tournefort.*

10. *Alysson vulgare, polygoni folio, loculo rotundo.*

11. *Alysson vulgare, polygoni folio trifido. Bursa pastoris minor, foliis trifidis, aliquando multifidis, florum petalis bifidis, loculo oblongo, M. H. 2. 306. Bursa pastoria minima, oblongis siliquis, verna, loculo oblongo, J. B. 2. 937.*

12. *Alysson fruticosum aculeatum, T. 217. Thlaspi fruticosum spinosum, C. B. Pin. 108. M. H. 2. 291. Leucium spinosum, sive Thlaspi spinosum aliis, J. B. 2. 931. Thlaspi fruticosum spinosum Narbonense, Lob. Ic. 217.*

Prickly Shrub Madwort.

13. *Alysson segetum, foliis auriculatis acutis, T. 217. Myagrum sativum, C. B. Pin. 109. Myagrum majus seu sativum, M. H. 2. 315. Myagrum dictum camolina, J. B. 2. 892. Myagrum Turcicum, J. B. 2. 893. Camelina sive myagrum, Dod. p. 532.*

Corn Madwort, with auriculated sharp-pointed Leaves.

Dodæneus is in the wrong to compare this Plant to the Madder. The *Myagrum sativum* is no more like the Figure of the *Myagrum* 1. *Tabern.* than like the *Myagro similis siliqua rotunda, Pin.* It's not ill represented in *Camerarius, Fig. 1.* though ill engraved by him under the Name of *Pseudo-Myagrum*; that Figure, being only a Copy from *Matthiæolus*, has the Fruits very ill drawn, and Flowers pentapetalous; which does not belong to any of the cross-like Flowers. *Martyn's Tournefort.*

14. *Alysson segetum, foliis auriculatis acutis, fructu majori, T. 217. Foliis est magis dissectis dentatis minoribus, fructu longe majore, tota planta humiliore.*

Corn Madwort, with auriculated sharp-pointed Leaves, and a larger Fruit.

15. *Alysson Siculum supinum, leucoli folio angusto, flore albo, odore mellis. Thlaspi Siculum supinum umbellatum, leucoli folio angusto, flore albo odore mellis, ex H. Cath. H. Mauroc. 170. Thlaspi Alyssum dictum, campestre minus, folio breviori, Ind. 137. a.*

16. *Alysson montanum incanum luteum, serpilli folio, majus. Thlaspi montanum luteum, serpilli folio, majus, C. B. Pin. 107. M. H. 2. 292.*

I suppose this is the same that is mentioned in *Tournefort's* History of Plants, by the Name of *Alysson perenne montanum incanum.*

This is a Plant whose Leaves are oblong and white, particularly underneath, rough to the Touch; its Stalks are about a Foot high, Ash-coloured, garnished with many Flowers, composed of four Leaves set cross-ways, of a fine yellow Colour: The Flower is succeeded by a small flat Fruit in Branches, divided length-ways into two Cells, full of small round Seed. Its Root is long, woody, dividing, and spreading itself very much: It grows in mountainous Places.

It is esteemed aperitive and proper against the Bite of a mad Dog. *Lemery de Drogues.*

Its Root is fibrous, white, five or six Inches long, about two Lines thick: It usually sends forth three or four Stalks, lying on the Ground, seven or eight Inches long, hard, woody, reddish towards the Bottom, wreathed, divided from the very Bottom into several small Branches, covered with a white Down, and garnished with Leaves of the same Colour; their Surface is a little shagreened, and they are shaped something like Olive Leaves, according to *J. Bauhine*; but they are about five Lines long: the Ground Leaves are much whiter than the rest, more serrated, and shorter. The Flowers grow at the Extremity of the Branches, in a kind of Head, and afterwards part upon a kind of Spike two or three Inches long. Each Flower is composed of four yellow Petals, two Lines long, almost oval at the End; the Chives are very slender, charged with yellow Summits: The Empalement also consists of four narrow, pointed Leaves, a Line and a half long, and soon falling off: Out of the Middle arises a flat, round Pointal, ending in a pretty fine Point; it afterwards becomes a Fruit of the same Shape, about two Lines Diameter, raised in Form of a little Bos, divided into Cells by a membranous Partition: There are usually in each Cell two oval, flat, red Seeds, a Line long. The Figure of the *Thlaspi montanum luteum, J. B.* represents this

this Plant well enough, only the Petals are too much cut; and besides, *J. Bauhine* has not noted whether it be perennial or annual. Our Plant lasts several Years. That which *M. Magnol* has called *Thlaspi Alysson dictum minus, capsulis majoribus rotundis non foliatis*, is annual, and its Stalks are less crooked: Thus *J. Bauhine's* Figure suits it less, than it does that which we just now described; and this Figure is much better than that which *Lebel* has given of it, under the Name of *Thlaspi supinum luteum*. The Capsules of these Plants appear, only because the Leaves of their Empalements fall off easily. *Martyn's Tournefort*.

17. *Alysson Alpinum hirsutum luteum*, T. 217. *Sedum Alpinum hirsutum luteum*, C. B. Pin. 284. *Sedum petraeum montanum*, Lob. Adv. 163. *Sedum minus*, 12. *Alpinum*, 6. Clus. H. 62. *Leucoium luteum aizoides montanum*, Col. 2. 62.

The yellow Alpine Alysson, with hairy Leaves.

18. *Alysson argenteo folio, stoculis luteis*. *Thlaspi folio majoranae Cuspi*. Hoc nomine misit Amplissimus *Sherard*. *Thlaspi Creticum, majoranae folio, supinum, flore luteo*, H. Maurocen. 171. Alysson with a Silver Leaf, and yellow Flowers.

19. *Alysson folio angustissimo viridi, stoculis albis spicatis confertim natis*.

20. *Alysson maritimum*, T. 217. *Thlaspi Alysson dictum maritimum*, C. B. Pin. 107. M. H. 291. *Nasturtium vel Thlaspi maritimum*, J. B. 2. 927. *Thlaspi centunculi angusto folio*, Lob. Ic. 215.

All these Plants are endowed with a very subtle, penetrating and diaphoretic Virtue, by which they expel Poison. The ninth and tenth are received, in Medicine, under the Title of Whitlow-grasses, and have the same Virtues as Scurvey-grass and Water-crelles. They spring up in Winter, and flower in January; and their Seeds also are used in Medicine, as Emollients, from which they express an Oil. The thirteenth and fourteenth are also called the *German Sesamums*, and the *Myagra of the Sheps*. Bruised and drank, to the Weight of three Ounces, they are sudorific and stomachic, and a very good Remedy in cold Affections. *Boerhaave, Hist. Plant.*

ALZEGI, (*Atrammentum*) Ink. *Rulandus*.

ALZEMAFOR, (*Cynobrium*) Cinnabar. *Rulandus*.

ALZILAT, (*Pondus trium Granorum*) a Weight of three Grains. *Rulandus*.

ALZIMAR, (*viride*) green. *Castellus* from *Rulandus*.

ALZOFAR, (*As ustum*) burnt Copper. *Rulandus*.

AMA, AME, or rather AMES, ἀμας, a Sort of small Cake. *Aretaeus* uses this Word to compare the Quantity of Hellebore to, which is sufficient for a Dose in strong Constitutions, when given in a Vertigo: His Words are *μικροδὸς ἀμας*, by which it should be ἀμα, or ἀμα, making ἀμας in the Genitive Case. But this properly signifies a Sort of Scythe, or Instrument, used by Labourers: But *Aristophanes* uses ἀμας in the Accusative Case, which *Suidas* explains, a Sort of Cake made with Milk, which should seem to be the same that *Aretaeus* means; and then it should be ἀμας.

AMALGAMA. This, in Chymistry, is a Substance produced by an Incorporation of Mercury with a Metal: The Chymical Character is A. A. A. The best Methods of making an Amalgama, are thus specified by *Boerhaave*.

1. Melt some of the purest Lead in a clean Iron Ladle, and then put into it an equal Quantity of hot Mercury, and stir them about with an Iron Rod: Let them grow cold, and you will have a homogeneous Mass of a Silver Colour, which will be considerably hard, but by rubbing will grow softer and softer: Put this Mass into a Glass Mortar, rub it, and then add to it what Quantity of Mercury you please, and it will be united to it, as Salt with Water.
2. An Amalgama of Tin is made exactly in the same manner; and this will also receive more Mercury.
3. Take a Solution of the best Copper in Aqua-fortis, so much saturated with the Metal, that it will dissolve no more; dilute this, with twelve times as much clean Water: Into the Liquor, when hot, put Plates of polished Iron, and the Copper will be precipitated, to the Bottom, in the Form of a Powder, and the Iron will be dissolved: Proceed in this manner till all the Copper is precipitated: Pour off the Liquor, and wash the precipitated Powder with hot Water, till it is perfectly insipid: Dry the Powder perfectly, put it into a Glass Mortar, and, by rubbing, incorporate with it an equal Weight of hot Mercury, and they will unite into an Amalgama; which will also receive a farther Addition of Mercury. An Amalgama of Copper, in any other manner, is very difficult to make.
4. Pure Silver, precipitated from Aqua-fortis, may, in the same manner, be made into an Amalgama.
5. Dissolve the purest Gold in Aqua-fortis, till it can take up no more; dilute the Solution with twelve times as much pure Water; put into it some polished Plates of

Copper, and a Powder of Gold will be precipitated to the Bottom of the Vessel, and upon the Copper. Let it stand in Heat, till the Liquor will no longer be rendered turbid by an Addition of Copper; shake the Plates, that all the Gold may fall to the Bottom; pour off the Liquor, wash the precipitated Powder with Water, dry it, and then in a Glass Mortar reduce it to an Amalgama with Mercury; and afterwards it will receive more Mercury, like the other Amalgamas. Or, take a Mixture of Gold and Silver, coppel it with Lead, and, by means of a good assaying Aqua-fortis, separate the Silver; then wash the black Powder of Gold that remains at the Bottom, dry it, and, whilst it is hot, rub it with Mercury, and it will presently be reduced to an Amalgama, which will receive more Mercury, as before. All Amalgamas are white, from whatever Metal they are prepared.

R E M A R K S.

By these Methods an Amalgama may be made, without any Loss, from all Metals except Iron: There are also other Ways of doing it, but not without considerable Loss of Mercury, and Danger from the Fumes: Hence we see, that Mercury is the true solvent Fluid of Metals. These, when they are thus reduced to an Amalgama, may be mixed and confounded together, and lie concealed among each other. This Solution of Metals by Mercury, I look upon to be the Foundation of Alchemy. By these means, some cheating Sophisticians adulterate Mercury with Lead; but, by exhaling a Grain or two of it, the Fraud is easily discovered. And thus, perhaps, the Congulation of Mercury, ascribed by *Paracelsus* and *Van Helmont* to the fixing Fume of Lead, and a wonderful fixing metalline Spirit, is brought about: For if you melt some Lead, and when it is beginning to cool, but is not hardened, you make an Impression on the Surface with a Stick, and gently drop a little cold Mercury, in a short time it will acquire a solid Consistence: But does not this happen from the hot Lead's being received into the Mercury, and so amalgamated, and of consequence forming a pretty hard Mass? Certainly, if you take a little of this fixed Mercury, and, in a proper Vessel, expose it to the Fire, you will find it so. This Art of making Amalgamas has given Rise to a common Cheat; for if you combine Gold or Silver with Mercury in this manner, by only adding Lead to them in the Fire, you may recover them again, and thus make a plausible Shew of producing these Metals: But only take a little of this Mercury, put it into an Iron Ladle, and set it on the Fire; and then the Mercury flying off, and leaving the Metal, will at once discover the Fraud. On these Principles depend the Art of Gilding with Gold and Silver.

The Ablution of Metals by Mercury.

Take an Amalgama, rub it in a Glass Mortar, the longer the better, and it will begin to grow black. Pour clean Water upon it, and continue to rub it, and the Water will grow black and turbid. Pour this out, add more Water, and rub again, and this will be changed as the former. Repeat this till the last Water, after rubbing, remains clear. You will then have a pure Amalgama, that looks like Silver. And here all Amalgamas, treated in this manner, make Water thus black, more or less, that of Gold however least of all. The Powder that comes away, when it is dried, is neither found to be Mercury nor Metal. The Amalgamas of other Metals will scarce ever, by thus washing, become perfectly clean, so as to communicate no more Blackness to the Water.

R E M A R K.

Hence we learn, that pure Mercury, by being mixed with Metals, becomes so united with them, that something which lay concealed in one or both of them, is by this means expelled. If in this manner you procure a large Quantity of this Powder from Gold and Silver, as the Matter of both these Metals remains exactly the same in Weight, without the least Addition or Diminution, the Powder must necessarily be produced from the Mercury.

There is something very surprising in this Ablution of Metals by Mercury, that the Amalgama should never cease to communicate this Blackness to Water.

AMALGAMATIO. *Rulandus* defines Amalgamation a Calcination of Metals by Mercury.

AMAMELIS, ἀμαμῆλις, a Fruit mentioned by *Hippocrates* in his first Book of the Diseases of Women, where he directs them in a Sort of Emulsion he there advises for Women whose Milk is deficient. It is generally agreed, that the Amamelis of *Hippocrates* is the same as the Epimelis (ἐπιμηλις) of *Dioscorides*, which is the SMALL BASTARD MEDLAR.

There is another Kind of Medlar, which grows in Italy; some call it *Epimelis*, other *Setanium*. The Tree is like an Apple-tree,

Apple-tree, only has smaller Leaves. It bears a round, esculent Fruit, with a large Eye, somewhat astringent, and flow in ripening. *Dioscorides, Lib. 1. Cap. 170.*

AMANDINUS LAPIS, a Gem of various Colours, which is fabled by *Albertus Magnus* to resist and expel Poisons. *Johnson* calls it, by Mistake, *Amandicus*.

AMANITA, *ἀμανίτης*, a Sort of Fungus, of which I meet no Account amongst the Antients, except in *Oribasius*, *Paulus Aegineta*, and *N. Myrepsus*.

Of the Class of Fungi, the Boleti boiled in Water; as they ought to be, become nearly of the Nature of those Aliments which are void of Qualities. They afford but a cold and phlegmatic Nutrient, and, if freely used, breed ill Juices. These, indeed, are the least hurtful of all the Fungi, and the next to them are the *Amanitæ*. As for the rest, it is safest to let them alone; for many have been poisoned by them. *Oribas. Med. Coll. Lib. 2. Cap. 25.*

Amanitæ, Fungi, and Tubera, (Trubs or Truffles, *Dale*) being of a cold and humid Nature, generate a thick and crude Juice, and, upon that, agree with a hot and dry Constitution. *Aëtiar. de Spir. Anim. Cap. 6.*

Let those who are dangerously ill with eating *Amanitæ*, Boleti, or Fungi, eat heartily of fresh Radishes, drinking, between whiles, some moderately strong Wine, sweetened with a little Honey; and let them try to vomit; or let them drink Nitre, or Rye finely powdered in Posca. *Myrepsus de Propom. Sect. 38. Cap. 171.*

Paulus Aegineta, L. 1. C. 77. repeats what has been quoted from *Oribasius*.

I don't know that it has been determined what Sort of Fungi those were, which *Oribasius* calls *Amanitæ*; it seems probable, that they took their Name from the Place where they were produced: But *Amanita*, as now understood, seems to signify much the same as *Fungus Terra*.

The only Fungi, which commonly enter into Food amongst us, are the common esculent Mushroom, or Champignon, and the Morille: The true Champignon is known by its external Whiteness, and by being of a palish Red within, when very young, and of a more saturated Red as it grows larger and older. These are a delicious, but very hazardous Food; for they will not agree with all Constitutions, nor always with the same Person; for many who have, all their Lives, indulged themselves in eating Mushrooms, have, at last, been greatly injured by a moderate Use of them: And it is remarkable, that some Seasons produce Mushrooms much more unwholesome than those produced at other Times. *Claudius* the Roman Emperor, and *Charles* the sixth, the late Emperor of Germany, are both said to have lost their Lives by eating Mushrooms: And I once was Witness of a violent Disorder, which was brought upon a Gentleman by eating Mushrooms, which had all the Appearances of being good in their Kind, which I had an Opportunity of knowing; because I saw them before they were dressed, saw them eat, and was in the House with the Patient during his whole Illness.

In the Morning, at Eleven o'Clock, he eat about a Dozen Mushrooms of a moderate Size: That Day he eat heartily of Beans and Bacon, and some other Things; and at Night he supped moderately as usual. The next Morning he complained of a great Pain and Uneasiness about four Inches below the Navel, and a disagreeable Aromatic Taste in his Mouth. The Pain continued all that Day, but moved gradually higher: The next Day the Pain, and disagreeable Taste, were the same, except that the Pain was got above the Navel; about Noon he fell into a violent Diarrhœa, which lasted that Day, and the two next, with very few Minutes Intermission. The Day after, his Pain was got to the Region of the Stomach, and gave him much Uneasiness; but immediately after drinking a large Draught of Sherbet, he vomited plentifully, and brought up the Mushrooms, without the Appearance of having been digested, or undergone the least Alteration in the Stomach, and with them the Beans, Bacon, and whatever he had eat since the Mushrooms. After this he was very easy, and recovered immediately.

I have heard, that Leeks are esteemed a Specific against the Poison of Mushrooms; but I never have known it used, nor do I recollect my Authority.

Lemery's Account of Mushrooms is as follows:

There are several Sorts of Mushrooms, which spring up in a short time out of the Earth, in Meadows, amongst Shrubs, and on Dung-hills. The best, and most safe for Mens Health, are those which grow up in one Night upon a Dung-bed, where Gardeners have found the Art to make them grow all the Year round; they ought to be white above, reddish underneath, pretty large, plump, tender, easy to be broke, and of an agreeable Taste and Smell. The Mushrooms that grow in Meadows are also very good, as appears by these Lines:

----- *Pratensis optima fungis*

Natura est; aliis male creditur.

Mushrooms are restorative, nourishing, and strengthening; they increase the seminal Fluid, create an Appetite, and have all those Properties that are necessary to please the Palate.

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Mushrooms sometimes work violently upwards and downwards, cause the Palsy and Apoplexy, and often kill with a malignant Quality, which they suddenly impart to the Humours. Now-and-then those of them which are looked upon to be the best and safest, suffocate and hinder Respiration, if taken never so little to Excess. There are also some of them, according to the Account given by divers Authors, which poison People, if they smell to them.

All Mushrooms contain much Oil, and essential Salt.

They agree at no time to any Age or Constitution, because they always do more Hurt than Good; and if Use be made of them, it ought to be done with much Moderation; and it is necessary you drink good Wine upon them.

R E M A R K S.

It's said, if you sleep Mushrooms in Water, and afterwards pour that Water upon the Ground, Mushrooms shall grow there; and this arises because the Water is filled with the Seed of Mushrooms, which afterwards are, as it were, hatched in the Earth; or because that this same Water hath dissolved some of the essential Salts of the Mushrooms, which serve to dilate and rarify the Seeds of other Mushrooms, which are scattered on the Ground.

It's said, that at *Naples* and *Rome* there are Rocks, and stony Places, upon which, if you throw hot Water, Mushrooms will grow at any time. 'Tis probable, this hot Water softens the Seeds of the Mushrooms that are in such Places, and opens their Pores, so that these Seeds more abundantly receive the remote Juices that are proper to extend and make them grow.

Mushrooms are a Sort of Viſuals that you cannot be too cautious of. *Dioscorides* divides them into two Classes, one of which are very dangerous, and may be reckoned of the Number of Poisons; the other does no Harm: However, we cannot but say, that these last, which are commonly made use of, are sometimes pernicious; since we see, every Day, whole Families brought to their End by eating them; which gave *Pliny* occasion to exclaim against the Luxury of Mankind, who, to gratify their Appetites, very often run the Risque of their Lives by eating Foods of that Kind. *Nero* called Mushrooms *βρῶμα θεῶν*, that is, the Viſuals of the Gods; because the Emperor *Claudius*, whom he succeeded, died with eating of Mushrooms, and was afterwards deified.

There are two different Parts in a Mushroom, *viz.* the oily, and saline, which last are of an acrid, volatile, very coagulating and malignant Nature: However, when they are strictly united with the others, they are not so dangerous; because they are kept down and embarrassed: But when there is not a strict Union between these two Parts, these Salts we have spoken of, getting the Ascendant, produce many ill Effects. For Example; the Mushrooms commonly used by us, spring up out of the Earth in a little time; they are presently to be gathered; for if you let them lie by for some time, they become a deadly Poison; because their Salts, which, at first, were sufficiently bound up by their ropy Parts, insensibly free themselves from the Fetters that shackled them, and, resuming all their Force, cause the Fermentation that is wrought in the Mushrooms.

Hence we may conclude, that the more oily Parts the Mushrooms have in them, the less dangerous they are; and that those which grow upon Dung-heds cannot produce such bad Effects as the others; because that Bed imparts a great Quantity of sulphureous Principles to them.

Mushrooms may also be pernicious by their spongy Substance, which coming to be diffused and rarified by the Heat of the Body, presses the Midriff, and those Parts which serve for Respiration, and hinders the Air to pass into the Lungs; and 'tis from thence that the best Mushrooms, being taken to Excess, sometimes suddenly suffocate.

When you eat Mushrooms, you ought to drink a good deal of Wine; because this Liquor, by the Help of the Sulphurs abundantly contained therein, embarrasses the Salts of the Mushrooms, and moderates their Operation. Honey is also accounted a Remedy against the ill Accidents caused by Mushrooms, and, upon this Occasion, operates in the same manner as Wine does.

Here it's to be noted, that if the Mushrooms do not retain their natural Colour after they are washed, but turn either blue, red, or black, they are very dangerous. *Lemery on Foods.*

The Morille is a kind of Spring Mushroom, as large as a Nut, of an oblong, pyramidal, or oval Figure, shriveled, tender, porous, cavernous, or pierced with large Holes, somewhat resembling Honey-combs, of a whitish or yellowish Colour; sometimes its Colour is white, inclining a little to red; and sometimes it is blackish.

The Morille contains a good deal of Oil, of Phlegm, and of volatile Salt, but very little Earth. It grows in grassy moist Soils, in Woods, and at the Roots of Trees. It is delicious when used as an Ingredient in Sauces; besides, 'tis of an invigorating,

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vigorating,

vigorating, restorative Quality, and proper to excite an Appetite. *Lemery de Drogues.*

You are to chuse such as are tender, of the Bigness of a Nut, oval, or oblong, of a yellowish Colour, or whitish, and full of large Holes like Honey-combs.

These Mushrooms create an Appetite, are of a strengthening and restorative Nature, and of great Use in Sauces.

The frequent Use of them heats much, and makes the Humours sharp.

They agree, in cold Weather, with those that are phlegmatic, and such in general whose Humours are gross, and have little Motion; but Persons of a hot and bilious Constitution ought to abstain from them.

The Use of this Sort of Mushroom is not attended with such bad Accidents as the other; and that, in all Likelihood, because their Salts are less injurious and pestilential than those of the common Mushrooms; or else, because they are more confined and embarrassed by sulphureous Principles. *Lemery on Foods.*

Tournefort takes Notice of Eighty-three different Sorts of *Amanita*, which are as follows:

1. *Amanita campestris, alba superne, inferne rubens*, Dillen. Cat. Giff. 177. *Fungus pileolo lato, & rotundo, livido*, C. B. Pin. 370. *Fungus campestris, albus superne, inferne rubens*, J. B. 3. 824. *Fungi vulgatissimi esculenti*, Lob. Icon. 271. CHAMPIGNON, or esculent Mushrooms, common in Pastures.

2. *Amanita Kremlinga alba*, Dillen. Cat. Giff. 178. *Fungus pileolo lato orbiculari candicante*, C. B. Pin. 370. *Fungus Sylvorum, esculentus candicans*, J. B. 3. 828. Found with the former. *M. Vaillant* has repeated this in p. 75. under the Name of *Fungus totus albus edulis*. The white esculent Mushroom.

3. *Amanita verna, pileo rotundiori, odorato & esculento*. *Fungi verni, Monceron dicti, odori & esculenti*. J. B. 2. 823.

4. *Amanita alba, pileo inverso*. *Fungi albi, pileolo inverso*. J. B. 3. 847.

5. *Amanita lutea perniciofa*. *Fungi lutei perniciosi, sub Pinu habitantes*. J. B. 3. 832.

This is engraved in the *Elements de Botanique*, Tab. 328.

6. *Amanita piperata alba, lacteo succo turgens*, Dillen. Cat. Giff. 179. *Fungus piperatus albus, lacteo succo turgens*, J. B. 3. 825. *Fungi pileolo lato orbiculari candicante*, C. B. Pin. 370. THE PEPPER MUSHROOM.

Found by Dr. *Lifter*, in *Marton-Woods*, under *Pinno-Moor*, in *Craven*, *Yorkshire*, plentifully. *R. Syn. Ed. 3. p. 4.* I have found it near *Dulwich*, about the End of *October*.

7. *Amanita major, rubescens aut subsulva, pediculo brevi, lamellis crebris albescentibus*, Dillen. Cat. Giff. 181. *Fungus lignosus fasciatus*, Vaill. 61.

Under Oaks in *August*. *R. Syn. Ed. 3. p. 4.*

The Stalk is about an Inch in Length, and as much in Thickness, of a dirty white Colour, full and fleshy. The Head is about three Inches in Diameter, hollowed, reddish, with whitish Circles. The Gills are set pretty close to each other, and are white, as is also the Flesh. It yields a glutinous and acrid Milk. *Vaill.*

8. *Amanita major lactescens, pileo ex albo purpurascens, lamellis crebris, caule brevi*. *Fungus lacteus maximus infundibuli forma*. Vaill. 61.

This resembles, pretty much, the two preceding ones. The Edges are, at first, turned down, but afterwards raise themselves so as to form a kind of Funnel, from three to nine Inches in Diameter. The Head, Flesh, and Gills are white, with a little Wash of Purple. The Gills are very close, and intermixed with shorter, and, as it were, half Gills. The Stalk is about an Inch long, and from half an Inch to an Inch thick. The whole Plant abounds with a very acrid Milk. *Vaill.*

9. *Amanita major lactescens, pileo subsusco, lamellis fulvis, caule brevi*. *Fungus lactescens praequantissimus*. Vaill. 61.

Its Head is flat, and a little hollowed at the Centre, two or three Inches in Diameter, of a very dirty white Colour, inclining to a Box Colour, unequally indented about the Edges with rounded Divisions. It is exceedingly full of acrid Milk. *Vaill.*

10. *Amanita lactescens fulva*. *Fungus lactescens piperatus rufus*. Vaill. 62.

The Head, Gills, and Stalk are of a reddish, or Copper Colour. It yields an acrid Milk. *Vaill.*

11. *Amanita major, pileo subsusco, lamellis albis*. *Fungus piperatus non lactescens*. Vaill. 62.

The Flesh of this has an acrid Taste, but yields no Milk. *Vaill.*

12. *Amanita fasciculosa purpurascens arborea*, Dillen. Cat. Giff. 180. *Fungus nostras pediculo brevi, in pileolum didymum abeunte*, Cistel. Reg. Vaill. 62.

The Head is of a bright and shining Chestnut Colour, the Gills yellowish, and the Edges turn down. *Vaill.*

13. *Amanita major palustris albida*. *Fungus albidus, infundibuli forma, palustris*. Vaill. 62.

14. *Amanita pileo flavo viscido, caule rufescente*. *Fungus glutine flavo limacino resplendens*. Vaill. 62.

The Head is of a Conic Figure at first, and afterwards expands, so as to become two or three Inches in Diameter. *Vaill.*

15. *Amanita major pileo griseo holosericeo, lamellis carneis, caule albo*. *Fungus griseus holosericeus, pileolo crenelato*. Vaill. 63.

The Head is sometimes five Inches in Diameter, turned up at the Edges like a Saucer. The Stalk is two or three Inches long, and about an Inch thick. *Vaill.*

16. *Amanita citrini coloris*, Dillen. Cat. Giff. 181. *Fungus pileolo stramineo*, Vaill. 63.

17. *Amanita media tota alba*. *Fungus mediae magnitudinis, totus albus*. Vaill. 63.

The Stalk is from an Inch to three Inches in Height, soft, usually full, and sometimes fistular, thicker at Top than at the Bottom, sometimes strait, and sometimes wreathed; sometimes round, and sometimes a little flat, with a furrow on each Side, from one to three Lines thick. The Head is from four to eighteen or twenty Lines in Diameter, cut at first into a Hemisphere or Cone, which afterwards growing flat, forms another Cone, inverted. The Gills are very far distant from each other, but the Spaces are filled with half and quarter Gills, proceeding from the Circumference. The whole Plant is milk-white, and a little shining. *Vaill.*

18. *Amanita pileo gilvo, lamellis albis crebris, superne ad margines apparentibus, caule albido*. *Fungus gilvus, margine tenuissimo*. Vaill. 63.

19. *Amanita pileo coniformi albo maculato*. *Fungus pileolo conico maculato*. Vaill. 63.

20. *Amanita plana orbiculata aurea*, Dillen. Cat. Giff. 179. *Fungus planus orbiculatus aureus*, C. B. Pin. 371. *Fungi lutei magni dicti Jaseran speciosi*, J. B. 3. 831.

Found in *Hornsey Wood* by Dr. *Dillenius*, *Syn. Stirp. Brit. Ed. 3. p. 2.*

21. *Amanita purpurascens, pileo sursum repando, caule albo*. *Fungus margine per maturitatem sursum rependo*. Vaill. 64.

22. *Amanita orbicularis, pileo & lamellis fuscis*, Dillen. Cat. Giff. 184. *Fungus late fusco colore*. Vaill. 64.

I have found this near *Dulwich*, in *October*.

23. *Amanita pileo fusco, lamellis & caule albis*. *Fungus late fusco colore, pediculo brevior*. Vaill. 64.

24. *Amanita clypeiformis major*. *Fungi multi ex uno pede clypeiformes lutei & rubri*, J. B. 3. 835.

25. *Amanita clypeiformis minor*. *Fungus clypeiformis minor*, C. B. Pin. 373. *Fungi parvi lutei & clypeiformes albi lethales*, J. B. 3. 847.

26. *Amanita fasciculosa viscida arborea mollis alba*, Dillen. Cat. Giff. 187. *Fungi albi lucentes ex uno principio plures ex radice arborum*, J. B. 3. 835.

27. *Amanita fasciculosa lutea dumetorum*, Cat. Giff. 186. *Fungi multi ex uno pede perniciosi*, J. B. 3. 835. I have counted above a Thousand of these from one Root. *M. Vaillant* has repeated this *Amanita* in p. 68. under the Name of *Fungi plures ex uno pede, e prunorum radicibus enati*, *Raii Hist. 1. 99. App. 32. 8.* *Fungus multiplex parvus luteus, pileolo mollior convexo*, Cistel. Reg. And again, in p. 71. under the same Name, where the whole Description is also repeated.

28. *Amanita colore lacteo*. *Fungus colore lacteo*. Vaill. 64.

29. *Amanita piperata non lactescens viscida, pileo ex fusco rufescente, lamellis & caule albis*. *Fungus piperatus, non lactescens, coloris brasiliici*. Vaill. 65.

30. *Amanita obtuse coniformis cinerea, aut ex livido nigricans, utrinque striata*, Dillen. Cat. Giff. 182. *Fungus parvus, pediculo oblongo, galericulatus striis lividis aut nigris*, *Raii Syn. Vaill. 65.* In Pastures on Dung, in *September* and *October*, *Syn. Ed. 3. p. 8.*

31. *Amanita pileo albo, centro rufescente, lamellis carneis, caule albo*. *Fungus pileolo albo, centro rufescente*. Vaill. 65.

32. *Amanita parva, pileo viscido, ex albido luteo, lamellis lividis, caule longo*. *Fungus capite hemisphaerico pallide lutescente*, Vaill. 65. It is common on Cow-dung and Horse-dung, in *September* and *October*. *M. Vaillant* seems to have repeated this *Fungus* in p. 71. under the Name of *Fungus parvus, pediculo oblongo, pileolo hemisphaerico, ex albido subluteus*. *Raii Syn.*

33. *Amanita parva verna utrinque striata fusca, pileo obtuse coniformi, musco palustri ramoso majori, foliis membranaceis acutis Vern. imascens*, Dillen. Cat. Giff. 184. *Fungus capitulo conico pallide cineritio, centro fusco*. Vaill. 65.

34. *Amanita tota alba*. *Fungus totus albus*. Vaill. 65.

35. *Amanita tota grisea*. *Fungus totus griseus*. Vaill. 66.

36. *Amanita fasciculosa sordide carnea*. *Fungus multiplex sordide carneus*. Vaill. 66.

37. *Amanita fasciculosa buxica*, Dillen. Cat. Giff. 187. *Fungus nostras multiplex, pileolo lato mammoso*. Vaill. 66.

38. *Amanita exigua, sanguinei coloris*, Dillen. Cat. Giff. 66. *Fungus parvus coccineus*, Cistel. Reg. Vaill. 66.

39. *Amanita exigua*, pileo umbilicato nigro, lamellis nigricantibus. Fungus minimus, totus niger, umbilicatus. Vaill. 66.

40. *Amanita minor umbilicata*, tota rufa. Fungus minor, totus rufus. Vaill. 66.

41. *Amanita minor*, tota citrina. Fungus minor, citrino colore, pedunculo flavescente. Vaill. 66.

42. *Amanita minor*, pileo villosa fusco, lamellis ex cinereo purpurascens, caule fusca. Fungus minor, pilei superficie flocculis fuscis, villosa. Vaill. 67.

43. *Amanita parva*, capitulo conico, violacei dilutioris coloris, Dillen. Cat. Giff. 181. Fungus minor *Amethystinus*. Vaill. 67.

44. *Amanita fasciculosa*, ex fusco violacei coloris. Dillen. Cat. Giff. 186. Fungus major violaceus. Vaill. 67.

45. *Amanita pileo incarnati coloris*, lamellis albidis, caule albo, ad imum tuberoso. Fungus dilute carneus, vel incarnatus. Vaill. 67.

46. *Amanita major*, pileo pallide violaceo, lamellis & caule candidis. Fungus magnus albus, pileolo lato, prona parte sordide cæruleo. Vaill. 67.

47. *Amanita pileo aurantii coloris*, lamellis & caule lividis, Hist. Plant. rar. Cent. 1. Dec. 3. p. 31. Fungus aurantii coloris, capitulo in conum abeunte, Inst. 559. Near Fulborn in Cambridgehire.

This is of a red Orange Colour, and its Head is a perfect Cone.

48. *Amanita pileo conico aureo viscido*, lamellis pallide flavis, caule aureo. Fungus aureus, capitulo in conum abeunte. Vaill. 67.

49. *Amanita ex livido albicans*, oris intus conversis, Dillen. Cat. Giff. 182. Fungus colore castaneo, margine per maturitatem introrsum convoluta, Vaill. 68.

50. *Amanita minima*, pileo & lamellis cinereis, caule fusco conico. Fungus minimus, pediculo conico. Vaill. 68.

51. *Amanita pileo clypeato rufescente*, lamellis & caule cinereis. Fungus clypeatus, in medio protuberans. Vaill. 68.

52. *Amanita parva*, utrinque striata, pileo coniformi, murini coloris, lamellis & pediculo albis, Dillen. Cat. Giff. 183. Fungus capitulo mammoso, centro papillari, Vaill. 69. It is found in Pastures in Autumn. This seems to be the same with what M. Vaillant has called, in p. 69. Fungus pileolo candicante, lamellis paucis, pediculo fusco splendens.

53. *Amanita exigua*, incarnati coloris. Funguli incarnati, coloris minuti, musco innati. Mentz. Pugill. Tab. 6. Vaill. 69.

54. *Amanita parva*, utrinque striata, pediculo tenui longo firmo lento, pileolo in medio fastigiato, Dillen. Cat. Giff. 183. In Pastures.

55. *Amanita ochro-leuca viscida*, pileo clypeiformi. Fungus colore homogeneo pallido, pileolo & pediculo glutine obducto. Vaill. 69.

56. *Amanita grisea viscida*, pileo clypeiformi. Fungus colore homogeneo griseo, pediculo glutine obducto. Vaill. 69.

57. *Amanita arborea mollis*, coloris exatè crocei, Dillen. Cat. Giff. 182. Fungus pileolo croceo, splendoris particeps. Vaill. 69. On Trees and rotten Wood.

58. *Amanita viscida*, pileo expanso sordide albo, lamellis candidis, caule solido. Fungus capite expanso, viscosus. Vaill. 70.

59. *Amanita viscida*, pileo primum conico, postea plano. Fungus cono primum obtuso, postea plano, pileolo & pediculo glutine obducto. Vaill. 70.

When this is young, the Head of it is usually of a dirty White, and the Top of a Box Colour: Sometimes it is of a dark Green, and sometimes of a Russet. The Stalk and Gills of this last are of the same Colour with the Head; but the Gills of the White and Green are usually of a Brimstone Colour, and sometimes washed with a little Green. The Stalk also is of a Brimstone Colour, with a Tinge of Verdegris towards the Top. Vaill.

60. *Amanita pileo obtuse coniformi*, e cinereo fulvo, lamellis albidis, caule longo firmo striato gracili, castanei coloris. Fungus fini equini, capitulo pileum Romanum referente. Vaill.

71. It has been found in Woods in England by Mr. Dale.

61. *Amanita pileo cinereo utrinque striato*, caule longo fistuloso. Fungus capitulo mammoso. Vaill. 70.

62. *Amanita fasciculosa*, pileo obtuse coniformi, utrinque striato pallido, lamellis nigris, caule albo fistuloso. Fungus nostras multiplex, pediculo fistuloso. Vaill. 70. I have often found this about the latter End of Summer; it soon rots; and is perhaps the same with that mentioned by Dr. Dillenius, (Syn. 7.) under the Name of Fungus parvus lethalis galericulatus. Lob.

63. *Amanita fasciculosa*, pileo ex luteo fusco, lamellis viridibus, caule pallido. Fungus medicæ magnitudinis, pileolo superne e rufo flavicante, lamellis subtus sordide viridibus, Raii Hist. 3. 17. Fungus luteus, pileolo molliter convexo, lamellis viridibus, Cistel. Reg. Vaill. 71. I found this on rotten Wood in the Apothecaries Garden at Chelsea in October.

64. *Amanita exigua candidissima*, pileo umbilicato. Fungus minimus albus umbilicatus striatus. Vaill. 71.

65. *Amanita fasciculosa*, pileo obtuse conico griseo, lamellis albis, caule griseo. Fungus multiplex obtuse conicus, colore griseo murino. Vaill. 71.

66. *Amanita pileo viscido luteo*, Hist. Plant. rar. Cent. 1. Dec. 3. p. 31. I suspect this to be the same with that which M. Vaillant describes under the Name of Fungus glutinosus, colore aurantio, p. 72. The Plant, which I mean, is very common in Pastures in Autumn.

67. *Amanita ovum referens*, humorem nigrum per maturitatem effundens. Fungus Typhoides. An Fungus non vescus, 7. Flor. Pruss. 89. An Fungus albus ovum referens, D. Doodii, Raii Hist. 3. 22. Vaill. 72. On a Moor betwixt Rood-Lane and Somerset-Bridge in Hampshire, Mer. Pin. I have seen it in great Plenty at Chesherton in May.

68. *Amanita fasciculosa*, ovum referens, minor, humorem nigrum per maturitatem effundens. Fungus multiplex ovatus cinereus minor. Vaill. 72.

69. *Amanita orbicularis alba*, lamellis & pediculo villosis, ac veluti farina conspersis, Dillen. Cat. Giff. 184. An Fungus minor tenerimus, farina respersus, pileolo superne cinereo, lamellis subtus tenuissimis nigris, Raii Syn. Vaill. In Pastures in September and October.

70. *Amanita fusca*, pileo infundibuli-formi. Fungus foliaceus vel lamellatus infundibuli forma, fusco-lividus. Vaill. 73.

71. *Amanita fasciculosa*, pileo fusco, lamellis & caule griseis. Fungus multiplex campaniformis, colore fusco. Vaill. 73.

72. *Amanita fasciculosa*, pileo & caule castanei coloris, lamellis ex sordide albo pallide rubentibus. Fungus multiplex campaniformis, colore castaneo. Vaill. 73.

73. *Amanita fasciculosa*, pileo rufescente, margine arancofo, lamellis crebris fuscis, caule albo fistuloso. Fungus capitulo mammoso rufescente. Vaill. 73.

74. *Amanita fasciculosa*, pileo ovato sulcato cinereo, lamellis crebris lividis, caule albo. Fungus multiplex ovatus. Vaill. 73.

75. *Amanita sicca & levis*, pileo magno plano orbiculari, pediculo longo, plerumque bulbiformi, Dillen. Cat. Giff. 180. Fungus pileolo lato, longissimo pediculo variegato, C. B. Pin. 371. Vaill. 74.

Observed frequently in England by Dr. Lister; as in Chesherton-Close near Cambridge, and in the Woods in Lincolnshire; who also experienced it, in eating, to be more savoury than the Champignon. R. Syn. Ed. 3. p. 3.

76. *Amanita pileo lato rufescente*, micis surfuraceis aspersa, lamellis albis, caule tuberoso. Fungus pileolo lato, micis surfuraceis asperso. Vaill. 74.

77. *Amanita pileo virecente*, ex pila erumpens. Fungus phalloides annulatus, sordide virecens & patulus. Cistel. Reg. Vaill. 74.

78. *Amanita pileo lato albido*, lamellis candidis ex pila erumpens. Fungus phalloides. Vaill. 74.

79. *Amanita pediculo bulbiformi*, pileo maculato, Dillen. Cat. Giff. 184. Fungus pediculo in bulbi formam excrecente. C. B. Raii Hist. 1. 95. Vaill. 75.

80. *Amanita pileo lato puniceo*, lamellis albis. Fungus pileolo lato puniceo; lacteum & dulcem succum fundens. C. B. Pin. 371. Vaill. 75.

81. *Amanita pileo candido*, tuberculis flavo-fuscis variegato, lamellis creberrimis. Fungus colore candido, tuberculis flavo-fuscis elegantissime variegato. Vaill. 75.

82. *Amanita pileo clypeato castaneo*, centro rufo, circulo sordide albo circumdato, lamellis creberrimis flavescens. Fungus centro mammoso rufo, circulo sordide albo circumdato. Vaill. 76.

83. *Amanita minima*, pileo aurantii coloris, lamellis ex albo rufescentibus. Fungus minimus aurantius mamillaris. Vaill. 76. Martyn's Tournefort.

Something like the Mushroom is the Truffle, except that it never appears naturally above Ground. Of this there are two Sorts, the first sometimes used in Medicine, (see BOLETUS) the second much used in Food.

The second is thus distinguished:

Tubera, Offic. C. B. 376. J. B. 3. 849. Clab. 591. Raii Hist. 1. 110. Synop. 20. Sterb. 308. Tab. 32. A. Hist. Oxon. 3. 638. Tubera Matthioli, Ed. Bot. 442. Tourn. Inst. 565. Tubera terræ, Ger. 1385. Emac. 1583. Tubera terræ edibilia, Park. 1319. TRUFFLES or TRUBS.

Mr. Geoffroy the younger having given several curious Particulars, relative to Mushrooms and Truffles, in the following Memoir, it will be of some Importance to insert it.

Observations upon the Vegetation of Truffles.

All Substances which appear to vegetate, may, generally speaking, be divided into two Classes; such as have all the Characteristics of Plants, and such as want some of these Characteristics. Among those of the latter Kind, some have no Appearance of Flowers; as the Fig-tree, whose Flower is thought to be wrapt up in its Fruit: Others want the Appearance both of Flowers and Seeds; such as the most Part of Sea Plants, whose Seeds are suspected to lie concealed in particular Vessels, destined for the Purpose: Others have only Leaves without Stalks, such as Liver-wort, Sea-lattice, and Nostoch: Others have Stalks without Leaves, such as the Euphorbium, the Horse-tail,

Horse-tail, the Sea-oak, Corals, and the most Part of stony Plants. Lastly, others have scarce any Appearance of Plants, not having visibly either Leaves, Flowers, or Seeds. Of this kind are most *Mushrooms*, Sponges, Morilles, and especially Truffles, which are likewise without Roots. Botanists have only ranked them among the Class of Plants, because they are observed to grow and multiply, not doubting but they contained the essential, tho' they were destitute of the apparent Parts of Plants; as Insects have the essential Parts of an Animal, tho' their outward Form should have a different Appearance. Having made some Observations on the *Noctch*, I was led to examine the Truffle also, which is still more singular, and, for ought I know, has, as yet, had nothing positive advanced concerning it: I shall therefore give an Account of the Observations I have made upon its Analysis, and the uncommon Manner of its Vegetation.

This Sort of Plant is only a fleshy Tubercle, covered with a hard Sort of Crust, rough, and somewhat regularly furrowed on its Surface, almost like the Cypress-nut. It does not rise above the Surface of the Earth, but lies concealed about half a Foot below it. Great Numbers of them are found in the same Place, of different Sizes. Some of them are, now-and-then, found of a Pound Weight, or even a Pound and a Quarter: These last are but rare, and *Pliny* only mentions their being of a Pound Weight.

Certain it is, however, that some of them are very large: They grow in different Countries; and, in *Pliny's* Time, the most valuable were brought from *Africa*. They are now found in *Europe*, in *Brandenburgh*, and several other Parts of *Germany*; and are very common in *Italy*, *Provence*, *Dauphiné*, *Languedoc*, *Anjou*, and *Perigori*. They grow also in *Burgundy*, and some of them are found about *Paris*: It is observed, that they are ordinarily found in Fields, that are uncultivated, of a reddish-coloured Earth, and sandy, but somewhat rich. They grow at the Feet, and under the Shades of Trees; sometimes about the Roots of Stones, and sometimes in clear Earth: Their favourite Trees are, either the white or the green Oak; as the *Elm* is that of the Morille. They begin to be found when warm Weather first succeeds the cold, sooner or later, as the Season is more or less mild; for they have sometimes been very rare after hard Winters. At first they appear only like little round Pease, red without, and white within. These Pease grow larger by degrees; from that Time they begin to take out of the Ground what they commonly call White Truffles: These are of themselves insipid, and People dry them as an Ingredient for Ragouts; because they keep better when dried than marbled ones do. 'Tis a common Opinion, that Truffles, which have once been removed from their Places, are never after capable of being nourished; even when put into the same Earth from which they were originally taken: But if one leave them there for a certain Season, without disturbing them, they grow insensibly larger; their Bark becomes black, rough, and unequal, tho' they always retain their Whiteness within. Hitherto they have very little Smell or Taste, and can only be used in Ragouts. These are always called the first White Truffles, and are not to be made a different Species from the marbled or black ones, gathered in the End of Autumn, and even in Winter after the Frosts are begun; for, in my Opinion, they are only the same, arrived at different Degrees of Maturity. I look upon the White Truffle, in its first State, as a Plant which is, at one and the same time, Root, Stalk, and Flower, whose *Parenchyma* swells every Way, and whose Parts are insensibly unfolded: In proportion as the Truffle swells, its Bark becomes hard and furrowed in different Places, that so it may convey the more Nourishment to the grosser Mass: Then the Truffle changes its Colour, and, instead of white, it insensibly becomes marbled with greyish Streaks; and that which was formerly white, now looks like a Congeries of small Pipes, which spread themselves in the Heart of the Truffle, and terminate in the Furrows of the Bark.

The greyish Substance, which is wrapt up amidst these Canales, when viewed with a Microscope, appears to be a transparent *Parenchyma*, composed of Vessels or little Bladders: In the Middle of this Substance appear black round Points, distinct from one another, which have all the Appearance of Seeds nourished in that Substance, whose Colour they have darkened, and in which there remains nothing white, except the Vessels and some Capsulae. I look upon that white Substance as hollow Pipes, because I always see them terminate in the Bark.

When the Truffles are arrived at this Degree of Maturity, they are of a very good Smell and Taste: The Heat and Rains during the Month of *August* forward their ripening very fast, which may possibly be the Reason why some Authors have said, that Storms and Thunder first produced them. The Truth is, good Truffles are not dug but from the Month of *October* to the End of *December*; and sometimes to the End of *February* and *March*, when they are, even at that Time, marbled; whereas those gathered from the Month of *April* till *July* and *August*, are only white. If People neglect to gather the Truffles when arrived at their due Degree of Maturity, they rot; and then

we may observe the Re-production of the Truffle, because, after some time, we see several Bunches of other young Truffles filling up the Places of the rotten ones. These young Truffles are nourished till the first Colds come on; and if the Frosts are not intense, they get over the Winter, and furnish us betimes with the white Spring Truffles.

The excessive Cold in the Year 1709, is an additional Proof of what I advance, since Truffles were not found till the Autumn of that Year; the most forward ones, which should have appeared in the Spring, having perished by the Rigour of the Season; whereas they were very common the foregoing Year. We observe neither Hairs nor Filaments of Roots at the Truffles, when taken out of the Earth, with which they are cover'd in such a manner as to leave the Traces of their Bark imprinted in it, without appearing to have any other Communication with it. They are subject, like other Roots, to be eat into by Worms. The Worm which preys upon the Truffle, is white, small, and different from that which is hatched by its Corruption: Afterwards this Worm forms a kind of Bean, shut up in a very slender Covering of a white kind of Silk; from which, some time after, comes forth a bluish violet-coloured Fly, which makes its Way, from the Truffle, thro' the Furrows or Clefts observed in it. These Flies are infallible Signs, that there are Truffles to be found near the Places where they are observed.

If a dressed Truffle has been pierced by a Worm, it may be discovered by its being bitter to the Taste; and by a little Attention, one may observe the Place, where the Hole is, to be blacker than the rest, and that the Bitterness is caused by it, since the rest of the Truffle tastes well. Upon laying open the Place where the Hole is, one may easily discover the Nest of the Worm, and a Space round it free from Marbling, of a different Colour from the rest of the Truffle, and resembling that of rotten Wood. Upon viewing the Surfaces of Truffles with a Microscope, I have found, that certain white Specks, which I saw there, were so many small Insects, which prey'd upon them. They follow the Furrows of the Bark, that they may the more commodiously suck their Nourishment. These Insects are white, transparent, and of a round Figure, almost like Mites. They have only four Feet, a small Head, and creep pretty fast. These Insects are nourished by the nutritive Juice of the Truffle; for I have found some of them lodged in the same Cell which had formerly been inhabited by the Worm: They were become, tho' transparent, of a Coffee-colour, like the Place where the Worm had nestled. It is to be observed, that the Earth which produces Truffles, bears no other Plants upon it; for the Truffle absorbs its nutritive Juice, or rather by its Smell destroys or prevents the springing of other Herbs. This Reason appears to me so much the more probable, because the Earth, in which they grow, smells perfectly like them. The Peasants in some Parts receive Profits so considerable from the Sale of Truffles, as to render them very industrious in discovering the Grounds where they are, so that they are now become very skilful at it. They know the Extent of the Ground where the Truffles are, by its bearing nothing, and being void of all Herbs. In the second Place, according to the Quality of the Earth, if the Ground abounds with Truffles, it is chapp'd in several Places. They also know it by its being more light than other Earth, by these little bluish violet-coloured Flies I have mentioned, and by another Sort of Flies which are large, black, long, different from those produced from the Worm, but which are ingendered by the Corruption of the Truffle, and like those which are hatched in every other corrupted Matter. There is a Dexterity in digging Truffles without cutting them, especially if they are big. The Peasants have a kind of *Planting Stick* for digging them. In other Parts they do not trouble themselves with searching for them, but have recourse to another Method mentioned by *Pliny*, and other Authors. Swine are known to be very greedy of Truffles; they therefore make use of one of these Animals, which they train up to discover and dig them; but there is a Necessity for being very quick in taking the Truffles they find from them, and giving them something in their stead, lest they should be discouraged, and give over a Pursuit from which they receive no Advantage: And in *Montserrat* they have Dogs trained up for this very Purpose.

These are, in general, the Observations I have made upon the Truffle, and its Origin. 'Tis now my Business to determine the several Species of it.

Mr. *Tournefort* only admits of two, which he distinguishes by their Figure. The first is round, the Figure of which may be seen in his *Elements of Botany*, and is the same with that represented in *Matthioli*, and other Botanists: This is the Species which *Mentzelius*, in his *Pugillus rariorum Plantarum*, styles *Tubera subterranea testiculorum forma*, or, *The Subterraneous Mushroom in the Form of Testicles*. This Truffle differs from others, both in its Figure, and its internal Colour; which, as this Author says, is of a greenish Red, like the internal Colour of the Fuz-balls in our Woods; but perhaps, if he had opened them at another Season, he would have found them of a different Colour. He also compares them to another certain Substance,

Substance, which changes Colour like them. *Mentzelius* discover'd this Species in the Months of *August* and *September*, at which Season they are not perfectly ripe; he found them in a Province on the Frontiers of *Brandenburg*. According to this Account, we have as yet only two Species of Truffles, which differ in their external Appearance; and we ought not to look upon the Variety of internal Colours, or the different Degrees of Bulk, as Characteristics, or Marks of different Species, since the Roots or Stones they meet with in their Growth, may model them into different Forms. The Truffle then appears to me to be a Plant, and not a conglomerated Substance, or an Excrement of the Earth, as *Pliny* thought; and as a Proof of his Opinion, told a Story of the Governor of *Carthage*, who, upon biting a Truffle, found a Piece of Brass Coin in his Teeth. But this Circumstance is no satisfactory Proof of his Assertion, since the Truffle, in its Growth, must by chance have inclosed this Coin, as we sometimes observe in certain Trees, of whose Vegetation we are fully persuaded. I have Reason to think, that *Pliny* knew not well what to determine concerning this Matter, since he afterwards tells us, that no Truffles were found about *Mitylene*, in the Island of *Lesbos*, only when the overflowing of the Rivers carried the Seeds of them from a Place called *Tioves*, in the main Land of *Asia*, where were Truffles in Abundance. Perhaps we might be able to multiply Truffles, by trying different Means for that Purpose, since we plainly find, that they multiply in the Earth. This Reproduction would confirm my Opinion, that the Seeds are inclosed in the Heart of the Truffle, and that it is by this means, that the Colour of the Parenchyma is obscured. This Parenchyma is supported by Fibres, which run irregularly from the Circumference to the Centre, and all intersected by white Pipes, which form the Marbling of the Truffle. Sometimes these Pipes extend themselves, and form white Plates, composed of transparent little Bladders, which are slenderer than the rest; so that, when view'd Sideways, they form an even white Surface; and when observed perpendicularly, black Points may be observed scattered up and down them. If these Points are the Seeds of the Truffle, I should suspect, that the white Plates are, as it were, the Flowers of them, it being very probable, that the Flowers, together with the Seed, are included in the Truffle. Tho' the Fibres of the Truffle are very slender, yet the Whole of them, taken together, make a considerable Resistance, when an Attempt is made to break them in a longitudinal Direction. The Fibres are more distinctly observed in a faded Truffle, than in a fresh one, because the plump Contexture being wither'd, allows their Bags to be the more easily discovered, which, upon pressing them, yield their Contents; if, on the contrary, these Fibres are drawn in a lateral Direction, they easily separate into many fibrous *Laminae*. As a Proof, that these are real Fibres, the Place spoiled by the Worm, when view'd with a Microscope, appears like rotten Wood; so that they are in this State nothing more than Fibres or *Laminae*, without Juice, without Vesicles, and without Grains, which I take to be the Seed. We find them, as it were, pierced like a Sieve in the Places, where these Substances should have been contained; whence we may conjecture, that the Worms or Insects have extracted the nutritive Juice, since the Insects which I have found there, were of the same Colour with that Part of the Truffle where they made their Entrance.

But to come to the Analysis of this Plant, I first endeavour'd to discover whence its Smell proceeded; and that I might not alter their Principles by the Action of the Fire, I inclosed some of them in a Glass Cucurbit, covered with its Top, in which I had suspended Shreds of Paper, ting'd of a bluish Colour with the Tincture of *Turnsole*, and others ting'd with the Juice of Violets. In less than twenty four Hours, these latter Shreds assum'd a beautiful Emerald Colour, whereas the Paper ting'd blue with the *Turnsole*, did not change its Colour. This Experiment confirm'd me in the Opinion I had, that the Smell was no more than the unfolding and breaking forth of a *volatile alkaline Salt*, mixed with some Quantity of Sulphur. It also proves the Analogy of this Substance with Plants and Fruits, which only acquire a Smell by the Fermentation rais'd in them, and which ripens them. If this Fermentation becomes too strong, the Fruit rots, and yields a Seed perfectly ripe, as may be observ'd in Cucumbers, Gourds, and other soft Fruits. I find the same Circumstance to hold in the Truffle. It is insipid till the Fermentation has drawn forth its Principles, and put them into such a Motion as is sufficient to render them perceptible by the Smell and Taste. This Vapour is in the Truffle impregnated with such a Quantity of volatile Salts, that they discover themselves from the very Beginning of the Fermentation; whereas in other Plants, Woad alone excepted, the urinous Principle does not discover itself but in the Putrefaction. This is what I have observed with regard to Wormwood, from which I extracted an urinous Spirit, by allowing it to rot. The Smell of the Truffle is only agreeable in a certain Degree; for when there are many of them together, or when they are shut up close, they ferment to such a Degree, as to send forth a Smell like that of Musk; then they become mouldy and viscid.

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If Truffles are gathered in dry Weather, they keep much longer; especially if Care be taken to lay them at a Distance from one another, as People do other Fruits. I believe they might be preserved a considerable time in Oil, which would hinder the Fermentation, by blocking up the external Pores. The Country People pretend, that they are better after the first Frosts; which seems probable enough, since the Cold suppresses the Fermentation, and thereby qualifies them for being preserved longer than otherways they would have been. Those who keep them, chuse for that Purpose either Sand or Earth, according as they stand in need of Moisture or Dryness.

To continue the Analysis, I got some Truffles, took off their Bark, cut them into Slices, and put them into Water, which became impregnated with the Smell of the Truffle, and was of a nasty greyish Colour. I pour'd some of this Tincture upon Syrup of Violets, which alter'd its Colour, and assum'd a greenish Cast; I pour'd also some of it upon a Solution of corrosive Sublimate, which it at first darkened, and then insensibly produced a Precipitate of a dirty White: At last, the Water and the Truffles became putrid, of a very ill Smell, and viscid. I put into six Ounces of Spirit of Wine, three Ounces of Truffles, cut and clear'd from the Earth like the former; the Spirit extracted a red Tincture, which had exactly the Smell of the Truffle. This Tincture coagulated the White of an Egg, as Spirit of Wine uses to do, and produced a white Precipitate in corrosive Sublimate, because of the volatile Salt it contains. When I had suffered the Spirit of Wine to stand about two Months on the Truffles, its Smell was a little alter'd, and approach'd to that of a Quince. The Slices of Truffle, which I took out of it, were dry and tough like a Horn; and immediately after appear'd white, and cover'd, as it were, with an insipid saline Flower, which did not incorporate with the Spirit of Wine, as we daily observe, that volatile Salts do not mix with Spirit of Wine, or at least, that Liquor can only be impregnated with a very inconsiderable Quantity of such Salts. This Tincture of Truffles and Spirit of Wine, thrown into limpid Water, gave some Marks of a sulphureous or resinous Quality, since it a little disturb'd the Water. After having observed the volatile Principles of the Truffles, by the Help of a simple Fermentation, I afterwards call'd in the Assistance of a very mild Fire: For this Purpose I put twenty four Ounces of Truffles fresh, entire, and as thoroughly clear'd of their Earth, as they could possibly be, into a Cucurbit placed in a Sand Bath. In three Days I extracted two Ounces seven Drams and one Scruple of a limpid Liquor, which smelled very agreeably of the Truffle. This Liquor turn'd the Syrup of Violets green; but on mixing some of it with a Solution of corrosive Sublimate, both Liquors became milky, and assum'd the Colour of *Opal*, and then a white Precipitate was insensibly produced. In two Days and a half, I extracted five Ounces and six Drams of a Liquor, that was equally clear and fragrant, and which produced the same Effects as the former. In three Days more, I extracted three Ounces and a half more of a limpid Liquor, of a Smell somewhat empyreumatic, which considerably whiten'd a Solution of corrosive Sublimate, and even produced a kind of white and pretty thick *Coagulum*, but did not alter the *Turnsole* any more than the former Liquors, and fermented but very little with acid Spirits. In four other Days, I quite exhausted the Moisture of the Truffles, from which I drew, in that time, twelve Drams of a Liquor, which had the same Smell with the former, and produced the same Effects. I then found the Truffles in the Cucurbit entirely dry, and weighing only nine Ounces and five Drams. I put them into a Retort placed in a reverberatory Furnace, and drew from them, by a mild Fire, three Drams of a Liquor tolerably clear, which turned red after some Days, and had a volatile kind of Smell like that of Spirits, which have lost somewhat of their Strength. It turn'd the Syrup of Violets green, produced no Effect upon *Turnsole*, but coagulated, and even clotted a Solution of corrosive Sublimate. The second Liquor weigh'd three Drams, was of a milky Colour, and of a Smell like that of the volatile Salts of Animals. The third Liquor weigh'd one Ounce six Drams, was very red, and mix'd with a little Oil. These two last Liquors produced the same Changes as the former, in the Substances with which they were mixed.

The fourth Liquor weigh'd six Drams, was red, rich, thick, like Butter, and loaded with volatile Salt. This Oil did not change the Tincture of *Turnsole*.

There was about a Dram of volatile Salt in Crystals, loaded with Oil, and easily dissolv'd. The *Caput Mortuum* weigh'd four Ounces six Drams and thirty-six Grains. I calcin'd this Substance, and after the Calcination perceiv'd, that it was loaded with a great deal of Earth, which by the Force of the Fire had become red. I separated as much of it as I possibly could from the rest of the Mass, and procur'd of it an Ounce and two Drams; which amounts to the same as if I had only analysed twenty two Ounces and six Drams of Truffles; so that there only remain'd of the *Caput Mortuum*, after a Subduction of the Earth, three Ounces four Drams and thirty-six Grains. After the Calcination of this Substance, there only remain'd

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remain'd two Ounces and a Dram of white Cinders, from which I drew, by way of Lixivium, a Dram of fix'd alkaline Salt, mixed with Earth, and which produced a yellow Oker-colour'd Precipitate in a Solution of corrosive Sublimate. It turn'd the Syrup of Violets into a faint-green Colour, and fermented with Acids. This Analysis proves, that the Smell of the Truffle depends only on the vast Quantity of volatile Salt, which it contains.

As to the Virtues of Truffles, the common Opinion is, that they are hot: *Galen* however, according to *Matthiolus*, looks upon them as indifferent, and the Basis of all other Seasonings; and indeed it is to this Purpose, that they are used in all Ragouts. *Avicenna* speaks of them in a manner quite different, and says, they ingender thick Humours more than any other Food; that they are of hard Digestion, heavy on the Stomach, and that when much used, they have a Tendency to bring on an Apoplexy and Palsy. For my part, I believe these two Authors may be reconciled, if we consider two Qualities in the Truffle, which are capable of producing two different Effects: First, they may prove hot of themselves, by emitting their volatile Salts in the Stomach, or by being mixed with Salt, Pepper and other Spices, which they drink up like a Sponge. In the second place, they may prove of hard Digestion, when eaten immoderately by a Person of a weak Stomach, in which Case they produce bad Effects, stagnate and form themselves into a glaucous Substance, which disorders the Stomach, which may be occasioned by the cold Quality ascrib'd to them by *Galen*. As a Proof, that the Truffle is of hard Digestion, it has this in common with other Fruits, that it grows hard in Spirit of Wine, and is with Difficulty dissolv'd in Water. I kept one six Months in Water, without its being entirely rotten, the Bark still remaining, and not rotten, after all the rest. *Memoirs de l'Acad. R. des Scien. A. 1711.*

AMARA, Bitters. Of these there are many Sorts, especially amongst Vegetables, of which proper Notice is taken under the respective Articles as they occur, and under the Disorders in which they are useful. Let it suffice to say in general, that Bitters seem to exert their Efficacy, first, by bracing up the weaken'd and relax'd Fibres of the Organs of Digestion; and, secondly, by supplying the Place of a languid and inert Bile. Hence, in Constitutions that require it, Bitters, by promoting the Digestion and Assimilation of the Aliment, mend the Blood and Juices; and by fortifying both the Solids and Fluids, enable them to perform the respective Offices, which are necessary to a State of Health.

AMARACUS, Ἀμαράκω, Sweet Marjoram.

The Antients, in the Opinion of *Salmasius*, understood by Amaracus, two different Plants; the greater Amaracus, which is Sweet Marjoram; and the lesser, which is Marum.

But it has not been easy to determine, whether the Amaracus and Sampsuchum were the same Plant, or different from each other, for Reasons which will be given in the Dissertation quoted at the End of this Article from *Salmasius*.

This Plant is thus distinguish'd:

AMARACUS *Majorana Sampsuchum*, Offic. *Majorana vulgaris*, C. B. Pin. 274. Raii Hist. 1. 538. Tourn. Inst. 199. Elem. Bot. 168. Boerh. Ind. A. 178. Rupp. Flor. Jen. 190. *Majorana vulgaris aspera*, Park. Theat. 11. Hist. Oxon. 3. 358. *Majorana major*, or, Great Sweet Marjoram, Ger. 538. Emac. 664. *Majorana majori folio & semine nota*, J. B. 2. 241. *Sampsuchum*, *Amaracus*, *Majorana*, Chab. 419. SWEET MARJORAM.

This Herb has many Branches, which creep on the Ground, with hairy round Leaves, and thin, like those of Calaminth, of a very fragrant Smell, and heating, and folded into the Shape of Crowns.

It was usual to make this Herb an Ingredient in Acopas and Malagmas, on account of its warming Quality. *Dioscorides*, Lib. 3. Cap. 47.

The *Majorana vulgaris*, &c. Sweet Marjoram, is a little shrubby Plant, that grows to the Height of eight, and even nine Inches, is thick set with lignous Branches, which are of a square Form for the most part, somewhat hairy, and reddish. The Leaves stand opposite, and are shaped like those of *Origanum*, but of a much smaller Size, are covered with a hoary Down, have a fragrant Smell, and a somewhat acrid, bitterish, aromatic, and grateful Taste. About the Tops of the Stem and Branches, at the Bottom of the Leaves, and consequently from the Extremities of the little Sprays, shoot forth imbricated Ears, with hairy Leaves compacted like Scales, from the Middle of which proceed small whitish gaping Flowers, with a quadrisid Lip hanging down, under a Leaf, that stands upright. From the Centre of this gaping Aperture, arises a whitish Style divided in two. The Seed is like that of the common *Origanum*, being small, round, and of a dark-red Colour.

It is produced of Seed imported from *Narbonne* or *Provence* in France. *Raii Hist. Plant.*

Diocles the Physician, and the *Sicilians*, called the same Plant *Amaracus*, which the *Egyptians* and *Syrians* named *Sampsuchum*. It is propagated both ways, that is, both by Seed and

Slip. It is more spirituous, and of a sweeter Odour, than those we have mentioned [*Origanum*, *Thymus*, *Abrotanum*, &c.]. It is as full of Seed as *Abrotanum*. *Pliny*, Lib. 21. Cap. 11.

The finest and most odoriferous *Sampsuchum*, or *Amaracum*, grows in *Cyprus*. With Vinegar and Salt it cures the Bite of a Scorpion, the Place being anointed with it. The Application of it powerfully provokes the Menses; it is of less Efficacy when drank. Mix'd with Polenta, it restrains the Defluxion of Humours to the Eyes. The Decoction cures the Gripes, and provokes Urine, and is good for hydropical Persons. When it is dry, it excites Sneezing. There is an Oil made of it, called *Sampsuchinum*, or *Amaracinum*, which is warming and mollifying to the Nerves and Uterus. The Leaves, apply'd with Honey, discuss Lividness and Swellings, arising from Blows or Contusions in the Face, and are good for Luxations; if apply'd to the Place with Wax. *Pliny*, Lib. 21. Cap. 22.

The best *Sampsuchum* grows in *Cyzicus* and *Cyprus*: Next to these for Goodness, is the *Egyptian*. The *Cyziceni* call it *Amaracus*.

Amaracus is recommended by *Ruffus Ephesus*, and *Oribasius*, as a Purger of black and pituitous Humours. The Dose is four Drams of the Powder in Honey or Oxymel. *Ruff. Fragm. p. 127. Oribas. Med. Coll. Lib. 7. Cap. 27.*

The *Amaracus* grows with us in Gardens, and flowers in July; the Herb and Seed are used. It is a Cephalic, and an Anti-hysterical; and on that account is principally used in Disorders of the Head and Nerves, as well as of the Uterus and Stomach. It provokes the Menses, used in a Pessary; comforts the Brain, and discusses the Flatulencies, that molest it. Dale.

'Tis of fine Parts, digests, and attenuates. Taken any way, it helps cold Diseases of the Head and Brain. The Powder of the dry'd Herb, taken by way of Snuff, excites Sneezing, and draws out Phlegm, and strengthens the Head; the Juice of the Leaves, infused into the Nostrils, has the same Effect. It corrects also the Defects of the Thorax, and is friendly to the Stomach. Taken any manner of way, it relieves such as labour under Distempers of the Liver or Spleen; and helps Flatulencies, and other cold Diseases of the Uterus. Drank, it is a Diuretic, and purges watry Humours by Urine; and, chew'd or apply'd, it eases the Tooth-ach. It is an Ingredient in many Antidotes.

The Oil of it warms and strengthens the Nerves.

Nicolas Chesneau, M. D. of *Marseilles*, commends the following Errhine, as often experienced by him in the Head-ach:

Take of the Root of white Hellebore, half a Dram; of the Leaves of *Sampsuchus*, two Pugils; boil them in six Ounces of Water, to the Consumption of a third Part. When you use it, fill your Mouth with Water, and putting some of the Decoction, a little warm, in the Hollow of your Hand, draw it up your Nostrils, when the Pain is very violent, for it exasperates a slight one.

The Water of *Majorana* helps a Catarrh, if, instead of an Errhine, you fill your Mouth with Wine, or pure Water, and taking some of the Water of the Herb in the Hollow of your Hand, you stop one Nostril, and draw it up the other as far as the Root of the Nose, or the *Os Ethmoides*. If you don't take this Method, the Errhine will not ascend to the aforesaid Place, but will be diverted and drawn back upon the Fauces, or *Narium Foraminis*.

This Errhine (says *Simon Paulus*) my Father used with the highest Reputation in the Case of Prince *Walenstein*, who was afflicted with a Rheum.

If the Sides of the Nostrils (*Pinnæ Narium*) or the Space between the Eyebrows, be anointed with the Balsam of *Majorana*, it has a wonderful Effect in a Catarrh, or rather a Rheum (*Coryza*). The Nape of the Neck, (*Nucha*) and the Temples, are usually anointed with the same Balsam, not only in the aforesaid Disorder, but in other cold Distempers of the Head. These three Observations were communicated to Mr. Ray by Dr. E. Hulse. *Raii Hist. Plant.*

The Oil of *Amaracus* (ἀμαράκινον) is thus prepar'd:

The finest *Amaracinum* is made in *Cyzicum*. It is prepared of the Oleum Omphacinum and Oleum Balaninum inspissated with Xylbalsamum, the Juncus Odoratus, and Calamus Aromaticus, and sweetened with *Amaracus*, Costus, Amomum, Spikenard, [ῥόδον] Carpopalladium, and Myrrh, to which some add Cinnamon, who prepare it more sumptuously. In its Preparation they make use of a Quantity of Wine and Honey, which serves as well for anointing the Inside of the Vessels, as to macerate the powder'd Aromatics.

It heats, promotes Sleep, opens the Pores, [ἀνασπαστικόν] mollifies, kindles a Fervor, [πυρρῆλον] provokes Urine, is effectual in Putrefactions, [συνπας] and Fistulas, and in an Hydrocele, after the Operation. It cleanses and takes away the crusty Scabs round the Edges of exasperated Ulcers. It helps Difficulty of Urine, if the Patient be anointed with it about the Anus, and cures Inflammation of the said Part, and the Hemorrhoids,

morroids, if anointed in like manner. Apply'd to the Uterus, it provokes the Menfes, and diffuses any Hardness or cedematous Tumours which affect it; and, spread upon thin Woollen, and apply'd, is good for wounded Nerves and Muscles. *Dioscorides, Lib. 1. Cap. 68.*

This is directed in a manner somewhat different by *P. Ægineta*:

Take of Elecampane, [ἐλένιον] ten Pounds; Xylbalsamum, twenty Pounds; Cyperus, eight Pounds; the Flowers of Juncus Odoratus, Aspalathus, [ἀσπλάθου] Savine, each eight Pounds; Opoponax, Seeds of Amaracus, each two Pounds; of the finest Oil, [ἐλαίου πρώτου] eighty Pints; fragrant Wine, five Pints; macerate them all in Wine, except the Savine, and then boil them six Hours, but the Savine only three. Some add three Ounces of Ærugo, to give it a Colour. *P. Æginet. Lib. 7. Cap. 20.*

The Σαμψύχινον, or Oil of Sampsuchum, is thus prepared:

Take of Serpyllum, Cassia, Southernwood, Flowers of Symbrium, Myrtle-leaves, Sampsuchum, of each such a Quantity as you think fit, due regard being had to their Strength, and bruise them all together: Then pour on them as much Oleum Omphacinum as shall be sufficient, without over-powering the Virtues of the things macerated in it, and after four Days strain it: This done, take the like Quantity of fresh Ingredients, and macerate them in the same Oil, the same Length of Time, and then strain it; by which means the Oil will have the more Strength and Efficacy. Chuse your Sampsuchum of a black Colour, inclining to a Green, very odoriferous, and of a moderately acrid Taste.

It is of a heating, attenuating, and acrid Quality, is good for the Occlusion or Distortion of the Uterus, and brings away the Menfes, Birth, and After-birth, and relieves under Hysterics. It mitigates the Pains of the Inguina and Loins. It is best used with Honey, because by its vehement Astringency it hardens the Places. It dispels Lassitudes from the Parts anointed with it, and is a very useful Ingredient in Cataplasms. *Dioscor. Lib. 1. Cap. 58.*

Salmasius de Homonym. Hyl. Iatr. Cap. xiii. Of the Amaracus and Sampsuchus.

*Αμρακον, with the Greeks, was not the Name of one Herb only: Some Writers, who are neither inconsiderable for Number nor Authority, would have the Sampsuchus so called. It is strange, that *Dioscorides* should tell us, that the σαμψύχον (so the Copies have it) was called by the *Cyzicini* and *Sicili*ans αμρακον, and yet make the σαμψύχινον and αμρακινον Ointments two different things: But these Inconsistencies are customary with *Dioscorides*, as I have observed. *Hesychius* has it, Σαμψύχον πλεῖον, &c. "Sampsuchus grows very plentifully in Egypt; others call it Amaracus." But see, in Answer to this, *Meleager*, one of great Antiquity, who, in that Poem, where he compares each Poet with his proper Flower, makes σαμψύχον and αμρακον two distinct things:

Τῇ δ' ἄμα καὶ σαμψύχον ἀφ' ἡδονῆς ῥιανῆ,
καὶ γλυκὺν ἑλκίνης παρθενόχρῳα κρόκον.

"There was present the Sampsuchus from *Rhianus*, famous for its pleasant Air, and the sweet Virgin-colour'd *Saffron*, of *Herinna*." And a little after,

Ἐν δ' ἄρ' ἀμρακον ἦκε πολυσεφῆς ἀνθὸς ἀοιδῶν,
Φοίνικα δὲ νέκην κύπερον ἀπ' Ἀσιπάτρης.

"And there came the Amaracus, the Flower sung by *Polystatus*, and the mournful *Phœnician* Cypress, worn at Funerals, from *Antipater*." *Galen* also, and *P. Ægineta*, treat of the Amaracus and Sampsuchus in different Chapters, which they would not have done, if Amaracus and Sampsuchus had been all one. They who are mov'd by the Authority of *Dioscorides*, to think them the same, are not aware of what Strefs ought to be laid upon it. Nor indeed do they apprehend, that his Words, as they sound, are not levell'd against the opposite Opinion, which holds them to be distinct Species of Plants, but rather, if you take them aright, tend, not a little, to support it. "The *Sicilians* and *Cyzicini*ans, he says, call that Amaracus, which others call Sampsuchus." This does not make them to be the same: Himself plainly shews the contrary, when he makes the μύρον σαμψύχινον and αμρακινον different Ointments. *Diocles*, quoted by *Athenaus*, has αμρακον, ὃ τινες σαμψύχον καλοῦσι. To confirm this by an Example: Some of the Greeks call τὸ κελνον also λείον, according to *Dioscorides* himself, and many more. Nor did this hinder others from calling *Narcissus* by the same Name; and indeed more used this Word λείον for *Narcissus*, than for the Lily, which the Greeks called κελνον. But more than this may be said for Ama-

racus; which they would have to be Greek, but σαμψύχον an Egyptian and Syriac Word. *Pliny* says, *Diocles* the Physician, and the *Sicilians*, called Amaracus, what Egypt and Syria named Sampsuchum. So that αμρακον, it seems, is the Greek, and σαμψύχον, the Syriac Name for the same Herb. And indeed this latter Word plainly seems to be of a Syriac or Egyptian Turn; for Σάμψις is a City in Egypt, and Σάμψα a Village in Arabia, and Σαμψάοι another in Judaea, a Province of Syria, which they interpret ἡλιακοί, and σάμψα ἡλιον, whence also comes Βαίσαμψα on the Arabian Gulf, which *Stephanus* interprets οἶκον ἡλίου, "the House of the Sun." The Sun in Hebrew, 'tis well known, is called שמש *Shemesh*, which is the same in Arabic. There is Mention made of αμρακον in the Writings of *Theophrastus*, but none of σαμψύχον. In vain therefore would they draw him over to the Party of those who have inform'd us, that Sampsuchum is the same as Amaracus. I don't doubt but the Amaracus of the Greeks answered to the Sampsuchum of the Egyptians; but the Greeks called something else besides the Sampsuchus by this very Name. The *Cyzicini*ans, who had the best, and the greatest Plenty of Sampsuchum growing in their Territories, called it αμρακον, and so did the *Sicilians*. But all the rest of Greece did not agree in that Name; for some called αμρακον, *Parthenium*, of which *Dioscorides* speaks; viz. Παρθένιον, ὃ δὲ αμρακον, ὃ δὲ λευκάνθημον καὶ τὸ καλῶσι (so I read it from a very ancient Copy). "Parthenium, some call it Amaracus, others "Leucanthemus." Therefore *Pliny* is to be corrected in this Word, *Lib. 21. Cap. 30.* Parthenium alii Leucanthen, alii Tamnatum vocant, read alii Leucanthemon, alii Amaracum vocant. In the Index it is written Parthenium, five Leucanthes, five Amaracus. Λευκάνθης is the same as λευκαίνθημον. *Pliny* adds, *Celsus apud nos, Perdicium & Murarium*. He confounds, as he uses to do, two Parthenia. The Parthenium, which was also called Perdicium, was different from the Murarium, which grew on the Walls. There is a ridiculous Mistake of *Pliny*'s in what follows, *Flore albo, odore Mali, sapore amaro*. The Greek, from which he translated, reads thus; ἄνθη λευκά κύκλω, τὸ δὲ μέσον μύλινον, ὁσμὴ ὑπόβρωμον. *Pliny* read μύλινον ὁσμὴ, ὑπόβρωμον, and render'd it *Odore Mali*, which is most absurd. The Greek Author means, that the circling Leaves of the Flower were white, but the Middle of the Calyx yellow. This sort of Parthenium grows not in the Hedges, or on the Walls, but the other, which is called ἑλκίνη. And this Helxine itself is homonymous to another Helxine named κισσάμπελα and ἀμειρίνη, which is a Species of Convolvulus. The Parthenium Helxine, or Murarium of *Celsus*, is now called *Parietaria*, [Pellitory of the Wall] by a very ancient Name. *Constantine* called *Trajan*, *Herba Parietaria*, because his Name was inscrib'd on many public Buildings. *Ammianus* also calls it *Herba Parietaria*. The Authors of the *Hippiatrica*, *Cap. 390.* Σκόρδον Γαλλικὸν καλῶμενον, καὶ σιδιρίτιν περδίκιον τὴν ὀφθαλμῶν ῥωμαίοις λεγομένην παεισίαιαν βόλάνην. "Bruise Gallican Garlick, "and Sideritis Perdicium, called by the Romans, *Herba Parietaria*." And *Cap. 496.* καὶ φύλλον βόλάνης σιδιρίτιδος, ἢ ῥωμαίοι παεισίαιαν καλοῦσι: And *Cap. 562.* καὶ περδίκιον βόλάνην σιδιρίτιν, ἢ ῥωμαίοι καλοῦσι παεισίαιαν. "And the Herb "Sideritis, which the Romans call *Parietaria*." And so in many other Places. Now because there are several Species of Plants which bear the Name of Sideritis, they would be understood to mean what the Romans called *Parietaria*. *Paulus Ægineta* has, ἑλκίνη, ὃ δὲ περδίκιον, ὃ δὲ παρθένιον, ὃ δὲ σιδιρίτιν, ὃ δὲ ἡεφκλειαν, δύναμις δὲ αὐτῆς ῥυθμική. "Helxine, "called also Perdicium, Parthenium, Sideritis, and *Heracleia*; "it is of an absterfve Quality." This was the same with the *Urceolaris* of the Latins so called, because they scoured their Urcei [Pots] and Glasses with it. The Greek *Hippiatrica* [Barriers] *Cap. 520.* πρὸς ἀνάπνοιαν, ἢ οἱ βῆχα, "for a broken Wind, "or a Cough." βόλάνην, ἢ ἑλληνες ῥῶδ' περδίκιον, ῥωμαίοι δὲ ὑρκολάρεμ ὀνομάζουσι. "The Herb which the Greeks call "Perdicium, and the Romans, *Urceolaris*." Also *Pelagonius*, βόλάνης περδίκιαδον, ἢ ῥωμαίοι ὑρκολάρεμ καλοῦσι. "The "Perdicias, which the Romans call *Urceolaris*." The modern Italians call it *Vitreda*, from the Use it is put to in scouring of Glasses. An ancient Arabian Author, who added Arabic Nomenclaturas to a very old Copy of *Dioscorides*, calls this Helxine, *Hasjis Alzagagi*, that is, *Glasswort*, because it was used to scour Glass Vessels. He adds, in the same Place, that it was a Species of *Lebleb*, that is, of a *Convolvulus*. Thus he confounded it with another Helxine, which climbs up whatever is near it. But that it serv'd the ancient Greeks for the same Use, that is, scouring of Glass Ware, its Name shews us; for they call'd it κλύβατις, *Klubatis*, ἀπὸ τῆς κλύβης τὰς βάλλει, or βαλῆανδς, "from rinsing the Bases or Batiakes," which were a sort of Drinking-glasses. There is a Mistake in *Apuleius*, *Cap. de Perdicat.* of *Ulcioraria* for *Urceolaria*. *Pliny*, *Lib. 22. Cap. 17.* makes the Perdicium Helxine different from the Perdicium Urceolare. "Helxine, says he, is by some "called Perdicium, because the Partridges especially feed on "it; some call it Sideritis, others Parthenium." To this he subjoins its medicinal Virtues. A little after, as if he were speaking

speaking of another Herb, he begins again thus : “ *Perdicium*, “ or *Parthenium*, (for it is the same as *Sideritis*) is called “ among us, *Herba Urceolaris*, by others, *Astericum*. Its “ Leaves are like those of *Ocimum*, only blacker ; it grows “ on Walls, and Roofs of Houses.” He separated them also in the Index. “ *Helxine* XII. *Perdicium*, or *Parthenium*, “ or *Sideritis*, which is *Urceolaris*, or *Artereum* XI.” He transcribed those Accounts from two Authors, and therefore supposed they spoke of different things. For the *Helxine* of the *Greeks* is the same as *Urceolaris*, which was also called *Abstergium*, (for so it should be read in both the foremention’d Places) because it was used in absterging or scouring of *Urcei*, “ small Vessels.” *Helxine*, in *Dioscorides*, which is the same as *Parthenium*, has Leaves like those of *Mercury* (*λινόζωσις*). *Parthenium*, which is the *Urceolaris* of *Pliny*, has Leaves like *Ocimum*. They are the same thing, for *λινόζωσις*, or *Mercury*, has Leaves also like those of *Ocimum*. But *Pliny* says, that *Helxine* has Leaves, that bear a mix’d Resemblance of those of *Plantane* and *Horehound*. How so ? Why because he confounded the *Helxine* *Sideritis* with another *Sideritis*, the *Heracleia*, whose Leaves are of the Size of those of *Horehound*.

Parietaria, *Urceolaris*, *Abstergium*, *Perdicium*, and the *Herba Muralis* of *Celsus*, are Synonyma of the same Herb, which, with the *Greeks*, is that *Helxine*, whose different Names you find in *Dioscorides*, according to a very antient Copy, as follows : “ *Ἡλξίνη, ὅτι δὲ παρθένιον, ὅτι δὲ σιδερίτιν, ὅτι δὲ ἡράκλειον, ὅτι δὲ ὑγιερινὸν ἀγρίον, ὅτι δὲ κλύβου, ὅτι δὲ πολυώνυμον καλῶσι. φύει ἀπὸ θριγκοῦ καὶ τοίχου.*” “ *Helxine*, which goes by the various Names of *Parthenium*, *Sideritis*, *Heracleia*, wild *Hygieine*, “ *Klybatus*, and *Polygonum* ; it grows on Walls of Towns or “ Houses.” The Reason of its Name *Helxine* [from *ελεω*, to draw] is taken from its rough Seeds about the Stalk, which stick to Clothes. *Pliny* expresses it, by lappaceous, [Dock-like] Heads. “ Seeds, says he, in lappaceous Heads, “ which stick to Clothes, whence they would have it to be call’d “ *Helxine*.” He seems to call whatever implies a Faculty of drawing and sticking, *lappaceous*. *Dioscorides* has it, *Σπέρματα τετραχέα ἀντιλαμβάνοντα τῶν ἱματίων*, “ rough Seeds, that “ take hold of the Garments.”

Another *Helxine*, *ελξίνη*, of a quite different Species, is so called, because to whatever it applies itself, it uses to climb up, and twist itself about it : “ *Ἡλξίνη, ὅτι δὲ ἀμειδίην, ὅτι δὲ κισιάμπελον, εὐάλλα ἔχει ὁμοία κίσπη, ἐλαττώσα δὲ, καὶ κλώνια μακρὰ περισπείοντα ὅπως ἀντόχοι.*” “ *Helxine*, by some called *Hameisine*, by others *Cissampelus*, has Leaves like the Ivy, but “ less, which twine themselves about every thing they meet “ with.” The *Greeks*, according to their usual Custom, transfer the Properties of one *Helxine* to another, without making any Difference. So the *Parthenium* *Amaracum* is quite different from the *Parthenium* *Helxine*, or *Murale*, between which *Pliny*, according to his careless way, makes no Distinction. None then shall persuade me, that he had any Knowledge in Botany, who shew’d so much Ignorance in his Notions about an Herb so very common as *Parietaria*.

Well, but there are also two *Amaracums* ; one, otherwise called *Parthenium*, another also called *Sampfuchum*, which is either an *Egyptian* or *Syriac* Name. However I can hardly believe, that *Galen* and *Paulus*, when they gave us distinct Descriptions of the *Amaracus* and *Sampfuchum*, are to be understood of this *Parthenium* *Amaracum* ; much less should I be able to prove, that the *Unguentum* *Amaracinum*, which in *Dioscorides* is different from the *Sampfuchinum*, was usually made of this *Parthenium* *Amaracum* ; for it is an Herb of a very rank Smell. Besides, when *Galen* speaks of the Preparation of *Amaracinum*, he intimates as though he would be understood of that Sort of *Amaracum*, which was produced to the greatest Perfection in *Cyzicus*, and was called by the *Egyptians*, in their own Tongue, *σαμφύχου*. But *Neophytus*, under the Name of *Amaracum*, has described the *Parthenium* of *Dioscorides*, and ascribed to it the same Virtues, that *Galen* did to his *Amaracum*, which he separated from *Sampfuchum*. “ *Ἀμάρυλλον*, says he, ὅτι δὲ ἀνθεμίν, ὅτι δὲ λευκάνθεμον, ὅτι δὲ παρθένιον, ὅτι δὲ χαμαίμηλον, ὅτι δὲ χρυσοκαλλὸς, ὅτι δὲ μαλάβαθρον, ὅτι δὲ ἀνθότιον. Ῥωμαῖοι σῶλις ὀκούλον, ὅτι δὲ μυλλιφόλιον, ὅτι δὲ ἀνθόκαλον. “ *Amaracum* is called by some, *Ἀνθεμίν*, by others, “ *Leucanthemus*, *Parthenium*, *Chamaemelum*, *Chrysocallus*, *Malabathrum*, and *Ground-flower* ; by the *Romans*, *Oculus Solis*, “ *Millefolia*, and by the *Tuscan*, *Cantar* ;” to which he subjoins from *Galen*’s *Amaracum*, *Γαληνὸς ἀμάρυλλον θεισμὸν μὲν τῆς τριτῆς τάξεως, ξηρὸν δὲ τῆς δευτέρας*. “ *Galen* makes *Amaracum* to “ be hot in the third Degree, and dry in the second.” But I have long since resolved with myself to give but little Credit to those *Greeks* of the lower Ages ; for believe me, who am pretty well acquainted with them, they are not to be trusted. Here this Writer has coupled together several Flowers of quite different Kinds, as if the Names of Plants were their only Characteristics.

Nor can we pay a jot the more Deference to the Opinion of very celebrated Medico-Botanists, [*ιατροβotanιστῶν*] who would

persuade us, that the *Amaracus* of *Galen* and *Paulus* is not the *Sampfuchus* of *Dioscorides* and *Pliny*, but *Marum* ; as if *Galen* had not made distinct Mention of *Amaracus* and *Marum* in the Composition of the Ointment *Hedychroum*, where he also tells us, that *Marum* is of a stronger Smell than *Amaracus*. “ These “ three, says he, are of different Kinds, according to *Galen* ; “ viz. *Sampfuchus*, *Amaracus*, and *Marum*.” *Pliny* also, *Lib. 13. Cap. 1.* in express Terms, makes the *Sampfuchinum* *Unguentum* to be quite different from the *Amaracinum* : “ The “ best *Sampfuchinum*, says he, is to be had in *Cyprus* and “ *Mitylene*, where there is the most *Sampfuchus*.” A little after, in the same Chapter, he mentions *Amaracinum* separately, as a distinct Thing, thus : “ The Juices of each Plant “ make the celebrated Ointments. The choicest of these “ Herbs is the *Malabathrum* ; next to this are the *Illyrian* *Iris*, “ and the *Amaracus* of *Cyzicus*.” You see, that the most *Sampfuchus* is in *Cyprus*, whence comes the *Sampfuchinum* ; but the greatest Plenty of *Amaracus* is in *Cyzicus*, whence we have the *Amaracinum*. But I would beg Leave to observe here, that by *Amaracus* in this Place, is not meant *Marum*. For, in the same Chapter, *Amaracus* and *Marum* are both Ingredients together in some Compositions. *Telino Amaracum & Maron pariter adduntur*. The Royal Ointment also, and very many more, contain both *Amaracus* and *Marum*.

These Inconsistencies are owing to the Heedlessness and Inadvertency of Authors, who transcribing from different Places into their own Writings, took no Care, for the most part, to distinguish between things which ought to be separated ; but, on the other hand, made Distinctions without Foundation, and supposed a Difference between things which ought to be accounted one and the same. There is no doubt, but that the *Sampfuchus* was of the same Species with the *Amaracus*, this under a *Greek*, the other under an *Egyptian* Name. But to this Difference of Names we ought, perhaps, to add another resulting from the Nature of the Soil. For oftentimes the same Plant which grew in *Greece*, was of a different Habit and Figure from one growing in *Egypt* or *Syria*, as might be observed in the *Cypress* and *Ligustrum*, and not a few others. And so there might be also some Difference between the *Sampfuchus* and *Amaracus* as to their Juices, arising from their native Soil and Air. *Columella* makes *Egypt* the Country of *Sampfuchus*, and reckons it among exotic Herbs :

Nataque jam veniant bilari Sampfucha Canopo.
Come *Sampfuchus* from *Egypt*’s merry Land.

Nicander makes this only Difference between *ἀμάρυλλον* and *σαμφύχου*, that *Amaracus* grows in *Greece*, but the *Sampfuchus* is an Exotic. Amongst Remedies, that are effectual against the Bites of Serpents, he reckons up *Amaracus* and *Sampfuchus* separately :

— μάλα δ’ ἂν καὶ ἀμάρυλλον εἴη
Χερσισμῆιν, περσιῆς τε καὶ ἀνδρήεσι χλοάων.

“ Let *Amaracus*, in particular, contribute its friendly Virtues, “ the Herb that flourishes in Garden-plots and Terraces.” Here he plainly speaks of that *Amaracus* which was the usual Ornament of the Walks and Areas of Gardens. So in another Place, he distinguishes the medicinal *Nasturtium* from the common, in the following Words :

— πῶς εὐλλον ἐναλλόμενον πρασιῆσι
Καρδαμίδου, Μῆδον τε —

“ The Leaf of the *Cardamis*, that usually grows in Garden-plots, and the *Median*.” He calls it the common *Cardamis*, which was brought from *Media*. This Place was never understood by antient nor modern Interpreters.

Amaracus then was proper to *Greece*, and, as *Nicander* tells us, was common in Gardens. But a little after, he places *Sampfuchus*, as though it were a different thing from *Amaracus*, amongst *Alexipharmacs* :

— ὅτι καὶ ἄκλινος
Καυλὸς ἡνιμοῖται, ἰδὲ πῆρ’ ἀπὸ πολλὰ καὶ ἄρθου
Σαμφύχου.

“ Nor (forget) the waving Boughs of the Elder-tree, with “ good Store of the Branches and Flowers of the *Sampfuchum*.” No Reason but this can be given, why he should distinguish them. That *Sampfuchus* was not of the Growth of *Greece*, the Name itself sufficiently shews.

After this manner are Authors to be reconciled, who sometimes make *Amaracus* the same with *Sampfuchus*, at other times suppose them different. Have we not the like Instance in *Ligustrum* ? which some would have to be the same with the *Cypress*, others contradict it. We have asserted in another Place, that *Cypress* is the Eastern *Ligustrum*, and *Ligustrum* the common *Cypress* ; and yet there is no small Difference between them both in Figure and Smell.

They who have describ’d the *σκινιδία*, [Preparation] of the *Amaracinum* *Unguentum*, as it is prepared in *Cyzicus*, where the Name *ἀμάρυλλον* obtains, called it *ἀμαρύνιον*. But they who

who left us in Writing the *Egyptian* way of Preparation of the same Ointment, called it *σαμψύχιον*, because the Plant had the Name of *σαμψύχον* in *Egypt*. Others transcrib'd these different *σκευασίαι*, "Preparations," into their Books under distinct Titles. That *Dioscorides* did so, is plain; though in another Place he had owned, that *ἀμαράκον* and *σαμψύχον* were the same, and only differed in the Language. Hence *Galen*, and *Paulus*, who followed him, put them asunder, and enumerate them distinctly, as if they were really different.

I wonder too, that *Galen* and *Dioscorides* both write, that *Amaracus* was usually added to the *Amaracinum Unguentum*. But *Theophrastus*, in his Commentary on Smells, affirms this Appellation of *Amaracinum* to be Pseudonymous (*ψευδώνυμον*) because nothing of *Amaracus* used to enter that Composition: And 'tis observable, that *Amaracus* is the only fragrant Simple, that is left out in all Ointments by *Myrsifus*. Τὸ δ' ἀμαράκον τὸ χρεῖται ἐκ τῶν βελτίων ἀρωμάτων συνίσταται χρεῖς ἀμαράκον, τὴν δ' ἔχει μόνον τῶν ἀρωμάτων τὰς μυρσίφους, ἥ δ' ἐν μύρρον. "Good *Amaracinum* is compounded of the best Aromatics, except *Amaracus*, which is the only thing of that Kind, that never enters the Composition of any one Ointment." Ἀλλὰ ψευδώνυμον ἢ ἐπίκλησις, "the Appellation is pseudonymous," it is called *Amaracinum*, without a Mite of *Amaracus* in it.

With this agree *Servius's* Notes on the third *Æneid*. "*Amaracus* was a Boy, that was the King's Ointment-bearer, who happening to fall while he carry'd the Ointments, occasioned the greater Fragrance by their Confusion." Hence the best Ointments came to be called *Amaracina*. The *Amaracinum* then was so called from the Boy *Amaracus*, and not from the Herb of that Name, which had no Place in this Ointment.

Theophrastus informs us, that the *Amaracinum* was made of *Costus*. Ἀπὸ ρίζων δὲ τῶν τεύχεων καὶ γάρδων, καὶ τῶν ἀμαράκων ἐκ τῆς κόστης τῆς γὰρ ὀνομάζεται τὴν ρίζαν. "The *Irinum* and the *Nardinum* are made of Roots, and the *Amaracinum* of *Costus*; for they call this a Root." At this Rate indeed, the *Unguentum Amaracinum* must be different from the *Sampsuchinum*: But *Dioscorides* and *Galen* assure us, that the *Amaracus* was as usually added to the *Amaracinum*, as the *Sampsuchus* to the *Sampsuchinum*, in Defence of whose Assertion, the least that can be said is, that the Preparation of the *Amaracinum* in their Time, was different from what it was in the Days of *Theophrastus*. But what shall we do with *Pliny*, who tells us, that the Ointment was made of *Amaracus* alone, without the Mixture of any other odoriferous Ingredient? Why, we will say, that he was quite wrong; and, no doubt, he drew this contrary Sense from these Words of *Theophrastus*; viz. Τὴν δ' ἔχει μόνον τῶν ἀρωμάτων τὰς μυρσίφους καὶ ἐν μύρρον. He either read these Words wrong himself, or heard others read them so, as if they run thus: Τὴν δ' ἔχει μόνον τῶν ἀρωμάτων ἡ δὲ ἐν μύρρον. "This Aromatic is used to make up an Ointment by itself." But this same *Theophrastus*, who denies that *Amaracus* was used in the Composition of *Amaracinum*, assures us, that τὸ μάρον, "*Marum*," was an Ingredient in it: τὸ δὲ μάρον καὶ τὸ χρώμα τὸ ἐστὶ τὸ ἀμαράκον ἐμμεγρυνόμενον θυμαρίκιον. "But the *Marum*, and the *Chroma*, (*Cyperus*) which is an Ingredient in the *Amaracinum*, are healing; and the τὸ μάρον, and τὸ ἀμαράκον, seem to have the same Original, and the latter derived from the former, μάρον, μάρονον, and ἀμαράκον; so that they are Species of the same Genus, as appears by the Name. As the last descended from the other by Production, so it declin'd, and became inferior to it in Goodness and Virtue. The *Maron* then is better and more fragrant than the *Amaracum*, as is acknowledged by all.

As for the *Sampsuchus*, or *Amaracus*, then, we are certain it is that aromatic Herb which we call *Asajorana* (*Sweet Marjoram*). The *Latins* of the lowest Ages to named it, by way of Difference, to distinguish it from the lesser *Amaracus*, which was called *μαρρον*, "*Marum*." Nor are we to seek for any other Difference between *Amaracus* and *Maron*. The more modern *Greeks* interpret *σαμψύχον* by *μαϊωείον*, *Majorana*, which is the greater *Amaracus*, as *Marum* is the lesser. This latter is of a stronger and more fragrant Smell, according to *Galen*, and is really so. It is commonly called *Francia Majorana*, "*French Marjoram*." But, perhaps, this is a Corruption of the *Arabic* Name, of which by-and-by. It is also called in *Greek* ισόβρυον, *Isohyron*, because it is covered with a Multitude of small Leaves, resembling those of βρύον, "*Moss*." *Dioscorides*, μάρον, ἢ ισόβρυον (so it should be read). The more modern *Greeks* call it δειγανίς, *Neophytus* μάρον, ἢ δειγανίς, πῖα φεργανώδης. "*Marum*, by some called "*Origanis*, is a shrubby Plant." *Calamintha* also is by some called *Origanis*, which *Calaminth*, we are told by *Dioscorides*, resembles *Sampsuchus*, at least, τῇ λεπτοτάτῳ, "in Thinness of Leaves." The Scholiast on *Nicander* makes *Sampsuchus* to resemble *Hyssop*. This *Hyssop* some interpret *Casia*, as *Neophytus*, who writes, that ὕσσωπος, "*Hyssopus*," was by the *Romans* called κασιόλα, "*Caliola*." Ὑσσωπὸν ὕσσωπος, ὡς Vol. I.

δὲ λάττερ, ὡς δὲ κασιόλα. "The *Romans* call *Hyssop* *Later*, and "some *Caliola*." Some have also expounded *Sampsuchus* in *Latin* by *Casia*. Glossæ, σαμψύχον, *Sampsuchum*, *Casia*. These Herbs were scarce in ancient Times, and not to be met with every-where. *Pliny* reckons *Marum* an exotic Shrub, of the Growth of *Lydia* and *Egypt*; but *Dioscorides*, that it was πῖον γνέειμον, "a noted Plant," which grew very plentifully in *Lydia*. It appears to be a noted Plant in *Asia*, the Country of *Dioscorides*, whose Ancestors were of *Anazarba*. It was so little known to the *Romans* in those Times, that *Pliny* makes it a large Shrub, worthy to be mentioned with the *Cypress* and *Aspalathum*. "*Egypt*, says he, produces also *Maron*, but not so good as *Lydia*. It has larger and various Leaves, but the "*Lydian* has short, very small, and fragrant Leaves." I could venture to lay any Wager, that this *Egyptian* *Maron*, with the larger and less fragrant Leaves, is the same with *Sampsuchus*, or the *Egyptian* *Amaracus*. For the *Marum* had short and minute Leaves, and more fragrant than those of the *Sampsuchus*, which some also called *Marum*.

Sampsuchus was very plentiful in *Egypt*; whence the ancient Critics have expounded *Ναυκρησίτην* *εὐζανον* in *Anacreon*, by *Sampsuchus*. *Athenæus*, Παμπόλλης δὲ οἶδα λεγονίας ἐκ τῆς σαμψύχου εὐζανον εἶναι τὴν ναυκρησίτην, πολὺ δὲ τὸ αἶθρον τῆτο κατὰ τὴν Ἀργυρίην. "I know many who are of Opinion, that "the Garland of *Naucratis* was made of *Sampsuchus*, which "Herb grows very plentifully in *Egypt*." *Dioscorides* says, that *Marum* grows in great Abundance about *Tralles* and *Magnesia*, which are Cities of *Lydia*; and *Theophrastus*, among the Flowers used in Garlands, mentions the *Phrygian* *Amaracus*, which is the same with that of *Cyzicus*. *Galen* tells us, that he saw *Amaracus* in *Italy*, but does not say so of *Marum*. Therefore *Marum*, at that time, was found in fewer Places than *Amaracus*.

In a very ancient *Dioscorides* it is written, that *Sampsuchus* was called in *Arabic*, *Marzangius*, but *Marum*, τὸ μάρον, *Marmarbanz*. In *Avicenna* it is written *Marmarbanz*; for it is certain, that *Marum* is described by him under that Name, in Chap. 465. of the *Latin* Edition. An ancient Interpreter reads it *Marmacor*, from the Transposition of a single Punctum, διακεκρίκεν, "distinguishing Point." From this *Marzangius*, the *Barbarians* hammered out their *Majorana*, as if they would say *Marzangiana*. In both the *Arabic* Words you may trace the Term μάρον. There is room for Conjecture, that different Species of *Marum* are signified by these two Words. In the preceding Chapter, *Avicenna* reckon'd an Herb called *Maru*, among whose Species was found one named *Marmabuki*. *Bel-lunensis*, in his Lexicon, remarked, that *Marmacor*, or *Marmabauz*, was an Herb, which the common People at *Venice* called *St. John's Wort*, and that its Seed was called the Seed of *Maru*. But *Marmabauz*, in *Avicenna*, is the Term for the *Maron* of the *Greeks*, as appears from the Description. But what is called *Maru* in that Author, of which *Marmabuzi* is a Species, is another thing. *Alpagus* assures us, that it is the Herb *St. John's Wort*. *Leoniceus* pretends, that the *Bacchar* of the Antients is so called by the *Italians*. Whether this be true, I cannot say; but this is certain, that most of the Remedies, which *Avicenna* relates of the *Almaru*, agree to the *Bacchar*. Of the Species of *Marum*, one, he says, resembles an *Ox's Tongue*, or the Herb *Buglossi*, yea, is that very Herb. Nay in Chap. 436. where he treats of the *Buglossi*, he says, in express Terms, that its Leaves are like those of the *Almaru*. In a very ancient Copy of *Dioscorides*, λεβανώσις, is interpreted *Bezer Almaru*, "the Seed of *Maru*." Among the Species of *Libanotis*, *Dioscorides* reckons one, from *Theophrastus*, which has Leaves like the wild Lettuce. Οἰζυρας δὲ ἐστὶ μέλας τῆς ἐρείκης λεβανώσις, ὁρίσκει ἀγρία τῇ πικρᾷ ὁμοίᾳ φύλλα ἔχουσαν, ῥίζαν δὲ βραχύναν φύιδου. "*Theophrastus* relates, that "the *Libanotis* grows with the common *Erica*, *Heath*, and has "Leaves like the wild bitter Lettuce, and a short Root." The Place of *Theophrastus* is in Book 9. Chap. 12. of the barren *Libanotis*: Ὁ δ' ἀκαρπῶς ἔχει τὸ φύλλον ὅμοιον θριδαίνης τῆς πικρᾷ, τραχύτερον δὲ καὶ λευκότερον οὖναι δὲ ἐπὶ πικρῇ πικρίᾳ. "The barren Sort has a Leaf like that of the bitter "wild Lettuce, but rougher and whiter, &c." In this there is a remarkable Corruption, which must be amended by the Authority of *Dioscorides*, who, it is plain, read this Passage in *Theophrastus* thus: οὖναι δὲ ἐν ἐρείκῃ πλείον, "it grows where "there is plenty of *Heath*." This is what *Dioscorides* expressed, by saying, that this *Libanotis* did μέλας τῆς ἐρείκης φύειν, "grow with the *Heath*." 'Tis plain, that this is the *Libanotis*, which *Avicenna* reckons among the Species of *Almaru*, and likens to an *Ox's Tongue*. As to its having Leaves like the wild Lettuce, the more modern *Greeks* say the same of their *Buglossi*. *Neophytus*: βύγλωσσον φύλλα ὡς ἔχει ἔξ ἢ ὀκτώ, μήκῃ σπινθάρμῃ, ὡσαντί ἀγρίας θριδαίνης, πλοῦθον δακτύλων δυὸ ἢ τρεῖς. "The *Buglossi* has six or eight Leaves, a Span long, like those "of the wild Lettuce, of the Breadth of two Fingers, or less." This *Buglossi* is different from that of the ancient *Greeks*, whose Leaves are compar'd by *Dioscorides* to those of *Mullein*, φάρμακον, and is nearly the same with our. The Leaf is less than the Breadth

Breadth of two Fingers. The *Greeks* of the latest Ages call'd *βιρσγιν* what the Antients named *βύρλαον*. The barbarous Nations call'd it *Borrago*.

From what has been said, it appears, that partly *Baccharis*, and partly *Libanotis*, were, by *Avifena*, comprehended under the Appellation of *Almaru*. In another Place, he puts *Libanotis* under the Title of *Sceriar Mariem*, that is, *The Tree of Mary*, which, he says, was also called *Buchur Mariem*, that is, *Thymama Mariæ*. This I would have to be understood of the *Libanotis* used in Garlands, which the *Latins* called *Rosmarinus*; but *Avifena* took it for the other, of which there are three Sorts; and they are mistaken who comprehend these under the Appellation of *Rosemary*, since there is but one Sort which goes by that Name, and serves both for Garlands and Suffumigations, and was also used by the Antients in Ointments.

In an antient *Dioscorides*, *Baccharis* is spelt the same, almost Letter for Letter in *Arabic*. There is no mention of this, so far as I know, in *Avifena*. But his Account of *Almaru* is taken partly from this, and partly from the *Libanotis*, which, 'tis pretended, is the same with what is commonly called *St. John's Wort*. But this latter is a Name imposed on several Herbs in different Countries. The superstitious old Women, 'tis certain, gather several Sorts, out of a religious Motive, on *St. John's Eve*. *Puchsius* observes, that the *Hypericon* was called *St. John's Wort*, by his Countrymen, the *Germans*. There is another Sort, which our Peasants call by that Name, and a third, which is honour'd by that Title in *Venice* and the *Ferrarese*.

AMARA-DULCIS, a Plant thus distinguish'd:

Solanum lignosum Dulcamara, Offic. *Solanum lignosum*, seu *Dulcamara*, Park. Theat. 350. Raii Hist. 1. 672. Synop. 3. 265. Merc. Bot. 1. 69. Phyt. Brit. 115. *Solanum scandens*, seu *Dulcamara*, C. B. Pin. 167. Tourn. Inst. 149. Elem. Bot. 124. Boerh. Ind. A. 2. 67. Dill. Cat. Gill. 82. Rupp. Flor. Jen. 36. Buxb. 306. *Amara-dulcis*, Ger. 279. Emac. 350. *Dulcamara*, seu *Amara-dulcis*, Mer. Pin. 34. *Glycypheros*, seu *Amara-dulcis*, J. B. 2. 109. Chab. 114. BLETTER-SWEET. Dale.

It sendeth forth woody, brittle, slender Stalks, two or three, and sometimes five or six Feet long, which twine themselves about the adjacent Hedges or Shrubs, or otherwise lie flat on the Ground. The Bark of the young Sprays is green, but that of the old ones and the Stalks is rougher, and of a whitish or ash Colour on the Outside, but of a beautiful Green on the Inside. The Medulla, or Pith, is a fungous Substance. The Leaves stand alternately, resemble those of the *Solanum Hortense*, are of a dark Green, and sometimes furnish'd with two Lobes or Auricles at their lower Part, and a Pedicle of about an Inch long. The Flowers grow in small Umbellas, are scented, but fine enough to the Eye, being of a cæruleo-purple Colour, and sometimes white, and divided into five narrow sharp-pointed Leaves, bending back outwards, in the Middle of which are yellow Chives forming an Umbella. These are succeeded by soft slimy Berries, somewhat long in Shape, of a scarlet Colour when ripe, of an unpleasant Taste, and full of small, flat, whitish Kernels. It has a fibrous Root.

It delights in moist and watery Places, and therefore is often found about Pits and Ditches. It flowers in *June* and *July*.

Sebizius says, that the green *Dulcamara* bruised, and apply'd in Form of a Cataplasm, mitigates Pains in Womens Breasts, mollifies their Hardness, and dissolves grumous Milk in them.

It is said to provoke Urine, and to be successfully prescribed against the Dropsy.

Take (according to *Tragus's* Receipt) a Pound of the Wood of this Plant, cut it into Pieces as big as those you play with at Draughts, and put them with a Measure of White-wine into a new Pot, and stop it well with a Pot-lid, which has a small Hole bor'd in the Middle of it, and passe it all round with Water and Bran. Set the Pot over a slow Fire, and let it boil to the Consumption of above a third Part, and use the rest.

An ordinary Glass of this Liquor taken in the Morning, an Hour before you rise, and just as you are going to bed in the Evening, purges off the Yellow-jaundice, tho' never so inveterate, in a gentle manner, by Stool and Urine.

The Juice of it drank, is said to be good for Ruptures, and Bruises by Falls or Blows, being esteemed as effectual in dissolving concreat Blood any-where in the Viscera, and healing the Parts that are hurt. It is held to be useful also in opening Obstructions of the Liver and Spleen. *Parkinson* writes, that whenever he knew it prescribed, it work'd with sufficient Violence. And *Præstius* gives the Decoction of the Wood of *Dulcamara* the first Place among the gentle and kindly Evacuants of Bile.

The following Receipt is from Dr. Hulse:

Take four Handfuls of the Leaves of *Dulcamara* shred, with four Ounces of Linseed finely pulverized: Boil them in Muff Wine of Candy, or in Hogs Fat, to the Consistence of a Cataplasm, and apply it warm.

This Remedy, in the Space of one Night, discurst a Tumour as big as a Man's Head, and healed deplorable Contusions of the Muscles. Raii Hist. Plant.

AMARANTHUS, a Plant thus distinguish'd:

Amaranthus flos amaris, Offic. *Amaranthus maximus*, C. B. 120. Raii Hist. 1. 201. Boerh. Ind. A. 2. 97. Tourn. Inst. 234. *Amaranthus paniculâ sparsâ*, Ger. 254. Emac. 322. *Amaranthus purpureus major*, paniculis sparsis, Park. Parad. 371. *Amaranthus paniculis procumbentibus*, semine albo, seu *Quinva*, Hist. Oxon. 2. 602. *Blitum maximum* seu *Amaranthus major*, semine albo, J. B. 2. 908. Chab. 304. FLOWER GEN-TLE. Dale.

The *Helichrysus*, which some call *Chrysanthemos*, others *Amarantus*, of which they make Garlands to adorn the Images of the Gods, has a greenish-white, strait, firm Stalk, with narrow Leaves, set at Distances, like those of Southernwood, a globous Head of the Colour of Gold, a round Umbella of dry Clusters of Flowers hanging downwards. It grows in rough and rugged Places.

The Top, drank in Wine, is effectual in a Dysury, and against the Bites of Serpents, is good for the Sciatica and Ruptures, and provokes the Menfes. Drank in Mulsom, it wastes Concretions of Blood in the Belly or Bladder. The Weight of half a Dram, taken fasting in White-wine diluted, restrains Catarrhs. It is also put among Clothes, to preserve them from the Moths. *Dioscor. Lib. 4. Cap. 57.*

Pliny, speaking of the Combat between Nature and Luxury in point of Colours, says, we are fairly outdone by the *Amarantus*: This, says he, is rather a purple Spike than a Flower, and has no Smell. What is to be admir'd in it is, that it loves to be cropt, and springs out again fairer, and with more Lustre. It blossoms in *August*, and lasts till Autumn; and, what is strange, after it is cropt, and all the Flowers fallen off, if it be water'd, it springs afresh, and bears Flowers for Winter Garlands. Its Nature is well express'd in its Name, *Amarantus* [from a Neg. and *μαρανω*, to wither]; for it never withers. *Plin. Lib. 21. Cap. 8.*

The *Amaranthus*, or *Floramour*, grows to be three or four Feet high, with big chanell'd Stalks spread into several Branches, bearing pretty large broad Leaves, ending in a long Point, of a light, green Colour, and frequently a little reddish: On the Tops of the Stalks grow long Spikes of deep, red, staminous Flowers, hanging downwards, which, if gather'd in time, keep their Colours a long while; among these Flowers grows the Seed, small, round, and somewhat flattish, of a reddish-white Colour, and very shining. It is sown in Gardens, and flowers in *July* and *August*, perishing in the Winter. The Flowers only are used, and that but seldom.

They are cooling, drying, and moderately restraining; and from their Colour are suppos'd to be good to stop Bleeding and Fluxes of all kinds, in any Part of the Body. *Miller Bot. Off.*

It is cultivated in Gardens, and flowers in *August*. Dale.

It is mollifying and agglutinating, but it is not much made use of in Medicine. *Lemery de Drogues.*

AMARANTOIDES, *Globe Amaranthus*, or *Everlasting Flower*, called by the French *L'Immortal*. It is deriv'd from *Ἀμάραντος*, *Amaranthus*, and *εἶδος*, Form or Shape.

Amarantoides, *lychnoidis folio*, capitulis purpureis, T. 654. *Amarantho affinis*, altera species, seu flore purpureo, Breyn. Cent. 1. 110. *Amarantho affinis*, *Indiæ Orientalis*, floribus glomeratis, *Ocymoidis folio*, H. A. 1. 85. *Gnaphalio affinis*, *ocymastri folio*, flore ex purpureo violaceo, H. L. 294. a *Prægn.*

The Flowers are small, and cut into four Segments, which are collected into squamose Heads; from each of these Scales is produced a single Flower. The Ovary in the Bottom of the Flower becomes a roundish crooked Seed, which is contain'd in a thin Pellicule or Skin.

There are at present four or five Varieties of this Plant, but none used, as I can find, in Physic.

The two best Sorts were originally imported from the *East-Indies*, the rest we have received from *Barbados*. *Miller's Dictionary.*

AMARELLA, a Name given by *Gesner* to the *POLYGALA*. See *POLYGALA*.

AMATORIA Febris, the same as *CHLOROSIS*, which see. *Castellus.*

AMATORIA Venesicia, the same as *PHILTRA*, which see. *Castellus.*

AMATORII Musculi, the Obliquus superior, or *Trochlearis*, and Obliquus inferior, are sometimes thus call'd. *Cowper.*

AMATZQUITL, see *Uneda Patyrasca Nieremberg.*

Its Substance is light, and not unlike that of the Fig-tree. Its Leaves resemble those of the Lemon-tree, but are hairy and more acuminate or pointed. Its Fruit are as large as *Pontic* Nuts, divided into white Grains of the same Shape and Nature with those of a Fig. It grows in warm Countries, such as *Chittla*. A Decoction of the Bark of its Roots is of considerable Service in feverish Disorders. Its Leaves are only useful, by the agreeable Shade they form.

AMAUROSIS, *αμαυρωσις*, is an Impediment of Vision, when the Patient, without any manifest Fault in the Eye, can discern nothing at all. It is usually call'd a Gutta Serena. *Alvarius de Meth. Med. Lib. 2. Cap. 7.*

Mr. de St. Yves, the famous French Oculist, distinguishes the Gutta Serena into the perfect and imperfect.

The perfect GUTTA SERENA.

The Disease, call'd Gutta Serena, is a total Blindness, proceeding from a Palsy in the principal Parts of the immediate Organ of Vision.

Whatever Part of the Body a Palsy attacks, it has different Degrees, which render it perfect or imperfect. The same may be said of a Gutta Serena, which entirely destroys the Sight, or at least leaves so little, that it is of small Service to the Patients.

In order to give a clear Idea of this Disease, it shall be the Subject of two Chapters. In the first, I shall treat of that sort in which the Sight is entirely lost: And in the second, of that in which part of it remains.

There are several Causes which may produce a Gutta Serena: The first is a light Apoplexy, in which the Humour, instead of falling on the other Parts of the Body, is discharged on the Optic Nerves only, by which they are obstructed, and become paralytic.

This Disease depends on other Causes, as when some other Humour is filtrated into the Nerves, or by lodging on them causes a Compression, which hinders their Action; so that, whether these Nerves be obstructed or compressed, either by Blood, Pus, or Phlegm, all these different Matters may produce a Gutta Serena. If the Blood becomes too saline, it gradually causes this Disease by its Saltiness, which decays and dries up the principal Organs of Vision; and, if the Comparison may be admitted, as salted Meat grows dry. By this means the Sight entirely perishes.

We often see a Gutta Serena succeed acute Fevers, when the Humour that caused them is removed to the Visual Nerves; a violent Fever, which has too much rarefy'd the Blood in the Vessels adjacent to these Nerves, sometimes produces the same Effect; when a Venereal Humour is discharged on the Visual Nerves, causing violent Pains, and the want of Sleep, a Gutta Serena often follows.

This Disease commonly begins with violent Pains in the Head; and as they decrease, the Disease increases. Several People, however, have been struck blind at once, without any previous Pain; in others, the Pains accompany'd the Disease, which strengthened gradually, and their Sight diminished daily, till at length it totally perished.

When a Gutta Serena comes without Pain, and one Eye only is attacked, nothing can be perceived by looking at both Eyes, whilst they are open; but if the well Eye be shut, you may observe the Pupil of the distempered Eye dilate itself, tho' exposed to the Light, and it will remain in that State, till the well Eye be opened again; then the Pupil of the diseased Eye contracts itself, in like manner as that of the good Eye, from which the distempered Eye borrows its Motion. By this Sign only, we are assured there is no Sight in the distempered Eye. This Sign is peculiar to this Disease, and cannot be found in a Glaucoma, in which the Pupil continues always dilated. There is likewise another Species of *Gutta Serena*, in which the Pupil is always contracted, whether the good Eye be open or shut.

The Signs of a Gutta Serena are visible; for from the Inspection of the Eyes, we may see whether the Pupil be dilated or contracted.

As some Muscles of the Body are called Antagonists, because they perform opposite Motions, such as Flexion, Extension, &c. in the same manner, amongst the Motory Fibres of the Iris, some serve to dilate it, whilst others contract it; therefore, when in a Gutta Serena the Pupil remains dilated, the Fibres, which should contract it, are paralytic, in the particular manner I have described: But if the Pupil be contracted, these Fibres, which should dilate it, are affected; the Sight is equally lost in both these Cases.

A Gutta Serena has been hitherto deemed incurable. I can, notwithstanding, produce many Experiments to the contrary. I have, for the most part, observed that Species to be incurable which succeeds an acute Fever, when its productive Humour has been discharged on the Visual Nerves. If this Humour damages but one Eye, there is room to fear, lest the Fever return in the Year, and the other Eye be affected in the same

manner. I have hitherto observed this Misfortune happen to all those, whose Gutta Serena began by a light Inflammation, attended with violent Pains in their Head on the Side of the disorder'd Eye. This Observation has induced me to think, though I never dare attempt it, that by extirpating the decayed Eye, one might prevent the good Eye from falling into the same Misfortune. It would be a great Comfort to the Patient to have his other Eye preserved from the Discharge of this destructive Humour, which for the most part happens a Year or two after the Loss of the first Eye.

I have cured several of a Gutta Serena, when they were committed to my Care, in the Beginning. My Method is to bleed them in the Arm, in the Foot, and in the Neck, in Proportion to their Repletion; afterwards I prescribe them an Emetic, to be taken once or twice in the Interval of two Days.

All Remedies for a Palsy are likewise good in this Disease. A Seaton or Blistering-plaster may be laid to the back Part of the Neck. I find the Caustic too slow in its Operation, and the productive Humour of the Gutta Serena has Time to thicken, and thus the Disease becomes incurable.

Twelve Years since, a Country Curate, of the Diocese of *Paris*, came to consult me, a few Days after he had been attacked with a Gutta Serena in one Eye. I gave him a Vomit the first Day, the next Day he was let Blood in the Neck; two Days after he took a second Vomit, upon which his Sight began to return, and was gradually restored by holding his Eye over the Steam of hot Spirit of Wine.

Besides the Gutta Serena, of which we have now treated, there is another sort. It generally attacks Maids that are not regular, or Women with Child; and Men are likewise subject to it, through a Suppression of the Hemorrhoidal Flux. Some Authors ascribe the Cause of this Disease to an excessive Distention of the vitreous Humour; and in order to prove their Assertion, they pretend the Globe of the diseas'd Eye is bigger than it should naturally be. I have tried all Means possible to discover, whether the Cause of this Disease was owing to the pretended Increase of Size in the said Humour; but I could never perceive the least Difference from its natural State.

I judge this Disease proceeds from some Humour that is thrown upon the Visual Nerves, by which they are compressed. The Symptoms seem to strengthen my Opinion; for the Patients feel a Heaviness, attended with Pain more or less acute, in the back Part of the Globe of the Eye. This shews the Optic Nerves suffer by some Humour which is settled upon them, before they enter into the Eye: Besides, this Species of Gutta Serena is more frequently cured than the preceding; for, without Doubt, it proceeds from a simple Compression of the Nerves, and not from the excessive Size of the vitreous Humour.

Remedies for this Species of Gutta Serena are, Bleeding in the Foot, and these Medicines that provoke the Menstrues in Women, and the Hemorrhoidal Flux in Men. To make a Derivation of the Humour from the Eyes, Wood-hee, Eye-bright, either in Substance or Infusion, and Viper-broths, will be of Service.

We find Infants are not exempted from this Disease, since some are born blind. At first, their Blindness does not appear; but as they grow up, it is perceived. I have cured several with an Ophthalmic Water. Some of these Children, at the Age of two Years, had no apparent Signs of Sight. It is to be observed, the Pupil of these Children, though it has no Movement, is no more dilated than in its natural State; which Observation shews this Disease is only a Numbness, or Weakness, in the principal Parts of the Organ of Vision.

Of the imperfect GUTTA SERENA.

I call a Gutta Serena imperfect, when the Patients continue to see but imperfectly. It has different Degrees, according to the Number of Fibres which are attacked by the Palsy. Sometimes it is only a sort of Numbness in these Fibres; sometimes, only half an Object is seen, whilst the other half is not perceived, because only half the Eye can see, the other half being paralytic. You may easily find out the Degree of this Disease, by desiring the Patient to shut his good Eye, and look into a Book with his other Eye; for then he sees only a certain Part of the Page, whereas he can see the whole Page with his well Eye.

Sometimes the Fibres are quite emerg'd in the Humour which causes the Palsy; then the Patients can only perceive the Light, but not distinguish Objects. This Disease is often procured by what we call Vapours. I have frequently seen Women deprived of their Sight for the Space of half an Hour, an Hour, and sometimes for two or three Days. This last Case is incident to Women, in their Delivery.

This Disease has the same Causes with the perfect Gutta Serena, that Species which proceeds from Vapours excepted; but the Humour is in less Quantity, for which Reason the Eye is not so much injured.

I have

I have seen Persons afflicted with this Disease, from the Use of a Pomatum that had repelled a Tetter which was spread round their Eyes: They recovered their Sight by the Help of Aperitive Broths, and Sudorifics, which expelled the Tetter: Others have been attacked with this Disease, from a Cold they have taken in their Head, after a violent Heat.

The Signs of an imperfect Gutta Serena are easily known. By examining the Eye, whether the Pupil be dilated or contracted, the Degree of Sight may be soon learned; for in either of these Cases, if the Iris has one Quarter of its Movement, we judge that Quarter of the Sight remains; if it has half its Movement, half of the Sight remains.

In the Cure of this Disease, after the general Remedies, and these prescribed in the perfect Gutta Serena, Viper-broths, or the hot mineral Waters, should be drank, if the Disease seems to proceed from a viscous thick Humour; but if it is produced by a sharp thin Humour, the cold mineral Waters are to be preferred.

Let the Eye be held over the Steam of hot Spirit of Wine, or of Coffee; the Steam must pass thro' a Funnel. This must be repeated twice or thrice a Day.

I have cured several Persons afflicted with this Disease, by the Use of these Remedies. I shall only relate one Experiment, on account of its Singularity: Eleven or twelve Years ago, a Canon Regular of Rheims came to Paris to consult me. I perceived one of his Eyes was seized with an imperfect Palsy; there was a Dilatation of the Pupil, which had but a Quarter of its contracting Movement. I was very much surprised when he told me, if he looked into a Book, his well Eye being shut, that he could see the perfect Representation of his diseased Eye. At first, I judged him to be hypochondriac; but in order to be satisfied of the Truth, I desired him to close his well Eye, and to look into a Book; then I asked him, What he could see in the Page? He answered me, That he perceived the Lines like black Strokes, without distinguishing the Letters; and that, in the Middle, he saw the Representation of his Eye. I asked him, when he assured me he saw his Eye, of what Colour was the Iris, and the Disposition of certain Rays which cross it? He answered me so justly, and described them so accurately, that I could not see them better myself in his Eye. This young Canon was cured in thirty Days, by the Use of Purges, cooling Broths, and spirituous Applications to his Eye. He saw to read perfectly well, and was rid of the false Image of his Eye, which was so uneasy to him before.

Mr. Petit, of the Academy of Sciences, assured me, that he had seen the like Disease. *St. Yves.*

But Amaurosis, ἀμαύρωσις, in Hippocrates, does not seem to signify what we call a Gutta Serena, but only a Dimness of Sight, or temporary Loss of it. Thus, in his first Book of Prognostics, he mentions Dimness of Sight (ἐμπαρὰ ἀμαύρωσις) amongst the Signs of approaching Convulsions. And in this Sense it is generally to be taken in the above-mentioned Author.

To what has been said on the Subject of the Amaurosis, it will be proper to add the Sentiments of Hoffman.

I.

That sort of Blindness which the Greeks call ἀμαύρωσις, and the Latins a GUTTA SERENA, is a terrible Disorder. It is caused by an Interception of the Influx of the nervous Fluid into the Optic Nerve, which occasions a Loss of Sight; the Eyes, in the mean time, remaining, to all Appearance, unaffected; for if, in this Case, you look at the outer Part of the Eye, it appears sound and entire; nor is there any Defect to be observed, either in its Coats or Humours, unless that the Pupil appears larger, black, and more dilated than usual; it likewise appears to be stiff and immoveable, when the Rays of Light strike upon it: But notwithstanding all this, the Faculty of Seeing is either quite destroyed, or there only remains a Power of distinguishing Light from Darkness.

II.

This Disease is therefore different from a Vertigo, in which the Patient imagines himself in a gyratory Motion, and consequently staggers; but the Influx of the nervous Fluid is not quite intercepted, but only impaired and diminished, and that not always. The Gutta Serena is also different from a Cataract; for, in this latter, the Crystalline Humour appears to be opaque, and the Pupil, when exposed to a free Light, is contracted, but in dark Places dilated; whereas in a Gutta Serena, the Crystalline Humour appears pellucid thro' the Pupil; and the Pupil itself, whether in a light or in a dark Place, is neither contracted nor dilated, but remains immoveable.

III.

Nor are the Circumstances of this Disease always the same; for it sometimes seizes the Patient suddenly and unexpectedly, which is generally the Case when it proceeds from violent and external Causes; such as a Fall from any high Place, or severe

Blows on the Head; Instances of which may be found in *Hildanus, Cent. 5. Obs. 8.* and in *Amatus Lusitanus, Cent. 5. Obs. 64.* At other times the Sight is gradually lost, which is generally the Fate of old People, who are affected with an Hemiplegia, or Palsy, and of such as have the Misfortune to have weak and languid Constitutions. On other Occasions this Disease is accompanied with Head-aches, Vertigoes, Drowsiness, Noise, and Singing of the Ears: And at other times it appears without any of these Symptoms, and only afflicts the Patient with Blindness. There is likewise a periodical Gutta Serena, which seizing the Patient suddenly, and lasting for some Hours, goes off, of its own Accord; but its Returns are frequent: This is often the Case with hypochondriac and hysteric Persons, and with Women in Labour. The Gutta Serena is divided into Perfect and Imperfect; in the former, not only the Sight, but every the least Remains of Perception of Light, is destroyed; in the latter, Light can be distinguished from Darkness; to this Class seems to belong the *Visus dimidiatus*, when the Patient sees only half the Object; a particular Species of which is described by *Chr. Sigism. Wolffius*, (in a Dissertation, *de Amaurosi imperfecta*, 1709. *Trajecti*) where the Patient could only see the Feet, and under Part of the Trunk of a Man's Body.

IV.

As, in a Gutta Serena, the external Parts of the Eye seem to be free from all manner of Fault, we may reasonably conclude, that the Cause of the Disorder is to be sought for in the Optic Nerve, rather than in the Eye itself; and this may be even demonstrated, by dissecting such People as, during their Lives, had been blind in this manner; for, upon accurate Observation, we find, that their Optic Nerves were either too much extenuated, flaccid, and, by half, too little (of which see Instances in *Bonetus's Sepulchretum Anatomicum, Lib. 1. Sect. 18. Obs. 3.* and 4.) or surrounded and compressed by Blood, extravasated from the Brain, as hath been observed by *Wepferus de Apoplex. Hist. 4.* or encompassed by a hard Tumour, such as *Bonetus, Lib. 1. Sect. 18. Obs. 1.* takes Notice of, about their Origin. *Parsius, Observat. Anatom. 2.* observed a Bladder full of a watery Humour upon the above-mentioned Nerves, near their Conjunction. *Platerus* found a globular Tumour near the Optic Nerves of a dead Person, who, when alive, had laboured under a Gutta Serena; and *Bonetus, Lib. 1. Sect. 18. Obs. 5.* found the carotid Artery turgid with Blood, at the Place where it enters the Orbit of the Eye.

V.

Almost all the Authors, who have wrote upon this Subject, have judged the Gutta Serena to proceed from the Optic Nerves being obstructed by a thick Lymph, whereby the small Tubes, of which the Nerve is formed, being rendered impervious, the free Afflux of the nervous Fluid to the Retina, was, of course, either checked, or entirely intercepted; but 'tis not, as yet, proved by Anatomists, that Nerves consist of small Tubes, or Pipes, thro' which their contained Fluids circulate; neither is a thick and tenacious Lymph, but a Fluid, the most subtle of all others, and least likely to coagulate, circulated through the Brain and Medulla oblongata. That an Obstruction of the Nerves should arise from this Cause, is by no means credible; and much less can we suppose, that an Obstruction of the Optic Nerves should happen from any Matter conveyed to them from the Brain. In all Cases of this Nature, there must be so strong a Compression of the Optic Nerves as to prevent all Influx of the nervous Fluid into them, and by that means induce a Paralysis: Hence it follows, that the immediate Cause of a Gutta Serena, is a Paralysis of the Optic Nerves. 'Tis now evident, from the Structure of the Eye, that the Optic Nerve, as soon as it has entered the bony Orbit of the Eye, together with the Periostracum, which lines its inner Side, and has disposed of the external Covering, which it receives from the Dura Mater, for the Formation of the Tunica Cornea; I say, 'tis evident, from the Structure of the Eye, that after this, by another Membrane, or Covering, which it receives from the Pia Mater, it forms the Tunica Uvea, the Processus Ciliares, and Pupil of the Eye, and that its medullary Substance constitutes that soft and pulpos Coat called the Retina. Besides, 'tis well known, that the Retina receives the Images of visible Objects, and conveys them thro' the Optic Nerve to the common Sensory, where, by their means, the Ideas of Sight, or Vision, are excited; but 'tis equally plain, that, in order to perceive external Objects, a certain Tension of the nervous Parts is necessary; which Tension consists in a due Influx of the nervous Fluid. But since, in a Gutta Serena, there is a Paralysis of the Optic Nerve, and consequently of the Retina, the Uvea, and Processus Ciliares; hence it must follow, that these Parts are neither tense, nor transmit the Rays of Light, but the Pupil appears enlarged and dilated, by reason of the Relaxation of the Processus Ciliares. Nor is there, in this Case, any other Fault to be observed in the Eye, since the Motion of the Humours, and of the Muscles, which serve to move the Eyes, is regular and natural; which may be owing to this additional Reason, that the Muscles

cles and Vessels, conveying the Juices, take their Origins not from the Optic Nerve, but from other Nerves, that are not affected.

VI.

The Cause therefore which, by compressing the Optic Nerves, renders them paralytic, resides either about their Origin, that is, their *Thalami*, along which they run, or about those Parts of themselves which enter the Orbits of the Eyes: The Cause may also lie concealed in the Optic Nerve itself, and that too in the Blood-vessels, wrapt up in the very Middle of it; the Reality of which Vessels, not only our later Anatomists, but even *Wepfer* himself, (*L. de Cicut. aquat. p. 127.*) have demonstrated. If these Vessels, which are so many Branches, as it were, from the Carotids, or any of the rest of the Branches of the Carotids which surround the Orbit, should happen to be stuffed with stagnant Blood, they press upon and distend the medullary Tubes of the Nerves; and, at the same time, hinder the Return of the Lymph thro' the Vessels which surround the Nerves. This seems to be the Cause of a periodical *Gutta Serena*, which ceases upon the Removal of the Stagnation of the Blood: It is, besides, very probable, that, in a spurious Amaurosis, a Serum lodging itself within the Coats of the Eye, especially within the *Tunica Cornea*, is to be looked on as the Cause; in which Case, the Afflux of the nervous Fluid being too slow, a small Quantity of it only enters, which leaves no more of the Faculty of Seeing, than is sufficient to distinguish Light from Darkness.

VII.

Tho' the Disease now under Consideration may afflict Persons of all Ages, and of every Sex, when violent external Causes concur to its Production; such as Blows on the Head, Concussions of the Brain, or any other Accident, that may occasion a Stagnation of the Humours about the Optic Nerves; yet when it arises from internal Causes, it generally falls to the Lot of the Plethoric, the Phlegmatic, the Cachectic, and the Old, or of those who have a weak Head, and a frail System of Nerves, either thro' preceding Excesses of Passion; long Grief; anxious Care, too much Watching and Application, unseasonable Studying, reading small Print in a full Light, frequent Debauches; and, in fine, by being long exposed to the Cold, or labouring under the Misfortune of an hereditary Weakness. This Disease agrees with the other Disorders of the Brain, in this Circumstance, that it is founded on the Want of a due Tone and Spring in the Parts of the Brain itself.

VIII.

If we consider the secondary and more remote Causes of a *Gutta Serena*, they may be properly enough reduced to Repletion and Inanition. To the Class of Repletion belongs that *Gutta Serena*, which takes its Rise only from a Stagnation of Blood, more or less thick in those Nerves of the Brain which are contiguous to the Optic Nerve. This Species of the Disease is not only sometimes transitory and periodical, but even admits of a Cure, when it happens not to be of a long standing. This Degree of the Disease is incident, *First*, to those who are of a very plethoric Habit of Body, upon their using too violent Exercises, Baths that are too warm, or giving way to immoderate Transports of Anger: A Case of this Kind is to be found in *Consult. Med. Sect. Case 42.* *Secondly*, to Women that bear Children, either in the Birth itself, and then it is occasioned by the violent Contractions of the lower Belly, throwing the Humours up to the Head with uncommon Force; or after the Birth, if it has been difficult, and especially if there has been any Defect in the *Lochial Evacuations*: *Mauriceau*, in *CENT. 5. Obs. 568.* mentions a Case of this Kind, which, he says, was soon cured by Bleeding: It is likewise to be observed, that the *Hemicrania*, or Megrin, which succeeds Childbirth, most frequently terminates in Blindness. *Thirdly*, to Women who labour under a Suppression of their Menstrual Discharges, or any hysteric Disorder; a Case of which kind I have given in *Consult. Med. Sect. Cas. 44.* *Pechlinus* also, *Lib. 1. Obs. 24.* makes mention of a *Gutta Serena*, which, in Conjunction with a Head-ach, every Month afflicted a Patient who had her Menstrual Discharges defective. *Fourthly*, to those who labour under hypochondriacal or hysterical Disorders; and to those who are racked with violent Spasms of the lower Belly, by which the Humours are forced up to the Head: Hence is that remarkable Case which is related of a *Gutta Serena*, which succeeded a vehement Colic, accompanied with a Constipation of the Belly, which being cured by a Clyster, the *Gutta Serena* was forthwith removed.

IX.

But as a *Gutta Serena*, which arises only from a Stagnation of Blood, is transitory; so, on the other hand, if it continues long, or seizes phlegmatic Patients, or such as are of a bad Habit of Body, by letting fall its serous Part, as a Load, on the Nerves, it renders the Disease long, and very often incurable:

It is therefore no unprecedented Thing, that a *Gutta Serena* should arise from a *Purple Fever*, the *Itch*, *Ulcers*, or *Achors*, struck back into the Mass of Blood (*vide Act. Berol. Dec. 2. Vol. 6. P. 28.*); nor is it surprising, that Children who are weakly, or abound with Humours, should be subject to it; especially in Cases where the Measles have not come out well; or where the Intestines abound with Worms. A *Gutta Serena* also happens after acute Diseases, malignant Fevers, the Small-pox, or a Phrenitis, the Humours falling, by Translation, upon the Optic Nerves. Sometimes Persons of a plethoric, or of a bad Habit of Body, become blind by strong Purges or Vomits (as *Guldenklec*, *L. 1. Epist. 20. P. 498.* has observed): But Mercurials, unskillfully administered to Bodies abounding with impure Juices, do, of all other Medicines, contribute the most effectually to the bringing on this Disorder, by occasioning an obstinate Stagnation of the Lymph.

X.

These Causes belong to the Class of Repletion; but under the Title *Inanition*, are comprehended all excessive and immoderate Proflusions, or Dissipations of the vital Juices, which, as Experience teaches us, are frequently succeeded by a *Gutta Serena*, which more especially comes on after great Hemorrhages; and a Blindness has been particularly observed to follow a plentiful Vomiting of Blood, too great a Quantity taken away by Bleeding from a Woman with Child, and after taking a large Quantity from the Vein of the Forehead (*Bonetus, Lib. 1. Sect. 18. Obj. 2. lpp.*); for while the vital Humour is drawing away, the Vessels, which are distributed thro' the Brain, collapse, the Secretion of the nervous Fluid is diminished, and thence arise Vertigos, *Gutta Serenas*, Faintings, and other Calamities: But what deserves our principal Attention, is, the remarkable Consent which, in this Case, is found betwixt the Eyes and the genital Parts; since we observe, that Blindness is frequently the Result of immoderate and ill-timed Embraces, of which Circumstance I have made frequent Mention, and related a Case of this Nature, *Cons. Med. Cent. 2. Sect. 3. Cas. 104.* For the lymphatic seminal Fluid is much of the same Nature and Quality with that which is secreted in the Brain, and distributed through the Nerves; for which Reason the more liberal and copious the Excretion of the former is, the more scanty and deficient the Secretion of the latter must be: Hence the Want of a due Tone in the nervous Parts, Weakness of Sight, and even Blindness itself, usually follow.

XI.

The *Gutta Serena* is a very terrible and a very obstinate Disorder; and 'tis particularly to be observed, that if it is a perfect and inveterate one, or seizes old and worn-out Subjects, it is so far from admitting of a Cure, that the most terrible Train of apoplectic and paralytic Disorders generally supervene. This Distemper, on the other hand, when of a short standing, when imperfect, or when its Cause is only seated in the Coats of the Eye, sometimes admits of a Cure, especially in young and robust Patients. That Kind of *Gutta Serena* also, which is periodical, and the Effect of a Stagnation of the Blood, yields to Medicines, and may be cured; but that Species of the Disease which is accompanied with paralytic Disorders, or other Distempers of the Head, generally portends a Danger that can scarce be surmounted or avoided.

The CURE.

I.

The Cure of the *Gutta Serena* is very hard and difficult; for this Reason, that the Force and Energy of Medicines can have but little Influence upon those Parts which lie, as it were, remote, and hid within the Bones of the Skull: But this Circumstance should not discourage the Physician from trying the Extent of his Art, and attempting the Cure by a Method accommodated and adapted to the Causes of the Disorder: This he may do by pursuing these two Intentions, that of dissolving the stagnant Humours, which compress the Nerves; and that of strengthening and invigorating the Parts affected.

II.

For obtaining the former, which is indeed the more difficult of these Intentions, generous, and what we call *Herculean Medicines*, are to be called in to our Assistance. Thus, if a serous Humour, poured in upon the Brain, should happen to stagnate there, which is commonly the Case with Patients that are phlegmatic, cachectic, of bad Habits, or who have had Pustles struck back into their Blood, and especially if the Disorder be of a short Date, great Good may be expected from the actual Caustery applied to the back Parts of the Head, or the Nape of the Neck; in lieu of which a Seton may also be substituted. These Remedies operate in a two-fold Manner; that is, partly by exciting Pain, for thus they communicate a tremulous and vibratory Motion to the minutest Fibres of the Brain; and partly by promoting the Afflux of the Humours to

the Parts where the Wound is made, to which they generally drain, they draw off the stagnated Juices from the Brain, and Parts affected: And, indeed, if, in this Case, any Relief is to be expected, it is rather to be looked for from these Remedies, than from Vesicatories and Fontanels.

III.

But if this Malady takes its Rise from a Stagnation of the Blood, which is the Case with Persons of plethoric Habits, of florid and ruddy Complexions, of full and strong Pulsés, and of those who have any habitual Excretions of Blood retained; I say, in these Cases, we are to beware of the afore-mentioned Remedies, and must rather begin the Cure by Bleeding. In this Intention, it is very proper to take Blood from the Feet; but 'tis still more useful and advantageous to open the Veins of the Forehead, and the temporal Arteries; and, indeed, Nature herself seems to have pointed out this Method of Cure; for Examples have sufficiently proved to us, that blind Persons, who have received Wounds in the Forehead, which were followed by plentiful Hemorrhages, have, by that very Means, recovered the Use of their Sight. Leeches may also be used at proper Seasons, and even applied to the *Anus*, in case an hemorrhoidal Flux is stop'd. If an Hemorrhage from the Nose should be suppressed, a Probe may be thrust up them, in order to bring it on again, that so a speedy and efficacious Vent may be given to the Blood.

IV.

In a *Gutta Serena*, as well as all other Disorders of the Eyes, it is of singular Use to keep the Belly loose, that so the stagnating Humour in the Head may be drawn downwards: For this Purpose, the Medicines to be used should not be strong and violent Purgatives, but mild and gentle Laxatives, in Conjunction with Corroboratives, of which Kind are the *Balsamicocephalic Pills*. My balsamic Pills may likewise prove useful, if made up with *Mercurius Dulcis*, and the *Extractum Panchymagogum* of *Crollius*. Nor are pretty sharp Clysters to be despised in this Case; nay, their Efficacy is very considerable, if Costiveness of the lower Belly should happen to accompany the Disease.

V.

When the Disorder is very inveterate, and founded on an obstinate Stagnation of the Lymph in those Vessels which surround the Optic Nerves, then, after the Use of the Medicines already proposed, our only Hopes are placed in strong Discutients, especially when used internally; of which Kind there are two, which have the Advantage of all others, that *Sulphur of Antimony* corrected in the Manner ordered by me, and *Cinnabar*; of these two the following Powder may be made:

Take of native Cinnabar prepared, of Crabs-eyes, of prepared Amber, each two Drams; of the volatile Salt of Amber, and of Hartshorn, each ten Grains: Mix them up into a Powder, which divide into twelve Parts; to each of which, three or four Grains of the Sulphur of Antimony may be added. This Powder is to be taken every Evening, and next Morning an Intusion of Balm, Fennel-seed, and Valerian-root, is to be drank; and if the Distemper will not yield to these Medicines, we are to have recourse to a gentle Salivation, by which I have known some cured of an Amaurosis.

VI.

Along with the above-mentioned Remedies, external Discutients, nervous and balsamic Medicines, are to be used: Of this kind Sternutatories have a remarkably discutient Quality, and especially volatile Sal Ammoniac dried, and incorporated with Oil of Sage, Oil of Marjoram, and Balsam of Peru, stuffed up the Nose; or, which is still more effectual, Extract of Guaiacum Wood, in the Form of Resin, which remains after an Evaporation of the Decoction of that Wood, and was discovered by myself. Two or three Grains of this, taken up the Nose, excite a Sneezing, and powerfully draw the Phlegm from all Parts of the Head. A Bag likewise, stuffed with Valerian-root, Fennel-seed, and Rose-flowers, and besprinkled with the Water called, by the *French*, *L'Eau d'Arquebuse*, may be applied to the Eyes; or the Steam of the Infusion, mentioned in the preceding Paragraph, may be admitted into them. But, of all other Medicines, my *Balsamum Vitæ* is the most powerful, when Part of it is rubbed on the Temples, and Part of it dropt upon Sugar, and swallowed down; for, by using it in this manner, I have often carried off this Sort of Blindness, which has not been of a long standing.

PRACTICAL CAUTIONS.

Before Cauterics and Setons be used, the Body must be drained not only of its too great Quantity of Blood and Humours, but also of their Impurities; and the first Organs of Digestion must be cleared of all manner of Impurities: For which purpose Bleeding, mild Laxatives, and Medicines that

dilute and cleanse the Blood, are previously to be used. The same Caution ought to be used with regard to Sternutatories; for if they should be administered before the Body and Head are sufficiently purged, they would occasion a violent Afflux of Humours to the Head; but when the Body is duly prepared, they are of singular Advantage in the Beginnings of the Disease.

II.

Of corroborating Medicines, which are, at the same time, possess'd of a discutient Quality, my *Balsamum Vitæ* is one of the most efficacious against a *Gutta Serena*, especially if it proceeds from the falling of a serous Humour upon the Optic Nerves of phlegmatic Patients; in which Case, I have known this Balsam applied, upon Linen Cloths, to the Head and Forehead, about the Beginning of the Disease, entirely to remove the Blindness. But greater Caution is to be used in Bodies full of Blood, where the great Quantity and Congestion of Blood has brought on the Disorder; for, in that Case, Temperance, and such Medicines as not only diminish the Mass of Blood, but likewise check the Rapidity of its Motion, are most proper.

III.

As to the Use of external Applications, every one must see, that they are plainly of no Moment, in a true and inveterate Amaurosis, because their Virtues cannot reach the Parts affected; but when the Fault is not in the Optic Nerve itself, but rather in the Eye, and its Humours, or other Parts, then topical Applications are of considerable Importance; the chief of which are, either a Fomentation of the Decoction of Valerian-root, Cubebs, and Fennel-seed, made with Water and Wine, and conveyed into the Eyes, by means of a Funnel for that Purpose, or Cataplasms made after the following manner:

Take of the Roots of Angelica, of Master-wort, and Valerian, each two Ounces; of the Herb Chervil, German Leopard's-bane, of the Flowers of Elder, Lavender, and Roses, each three Pugils; of the Seeds of Fennel and Dill, each one Dram and an half; cut and beat them to a Powder, which boil in equal Quantities of Rose-water, and the Water called by the *French* *L'Eau d'Arquebuse*.

IV.

Sometimes the Cure of an obstinate Amaurosis is most seasonably and advantageously attempted by Hunger and Abstinence, which are principally conducive to this Purpose, in impure and cacochymic Constitutions, and such as abound with Blood and Juices; but this Method previously requires the Patient to be gently, but at the same time effectually, purged. If a Cure is intended this way, the Patient must eat only a little boiled Bread, a little roasted Flesh, and Raisins; he must carefully avoid all Wine and Ale, and drink a Decoction of Sarsaparilla, Liquorice, Raisins, and Fennel-seed; in which Course he must persist for three or more Weeks, as the State of the Disease shall require.

V.

There is great Hope of curing a *Gutta Serena*, which seizes young Girls and Children after the Small-pox, the Measles, and other eruptive Disorders; for as the Years of Maturity approach, and the Menstrual Discharges begin to appear, it either quits the Patient of its own Accord, or is surprisingly lessened; and at this Season there is particular Occasion for proper Means to assist and promote the Menstrual Discharge, a singular Example of which Case I have given, *Syst. Tom. 4. P. 1. Cap. 8.*

CASES stated, and Answers.

A Man, thirty Years old, about six Years ago, exposed his Body to a sudden Cold, after he had been over-heated by hard Labour, and violent Exercise; hence he felt a heavy Pain in his Head, and happening, at the same time, to get a Contusion of his Right Eye, he perceived the Sight of it to be very weak; whilst at the same time no Fault or Defect appeared externally: He therefore had recourse to various Remedies, Vesicatories, Fontanels, Collyriums, and Purgatives, but all to no Purpose. Before he had remained two Years in this Condition, he was seized with the Itch, after which the Disorder was also conveyed to his other Eye; the Sight of which was not only weak, but he also perceived Sparks and Atoms dancing before it, and saw every Object double with it. He was besides harassed with a prodigious Ringing of his Ears, great Weakness of the Stomach, Eructations, and Flatulencies, Costiveness, and spasmodic Pains in his Joints; his Complexion was of a livid Colour, and he still continued to live a sedentary Life, which called for a frequent Exercise of the Mind, and much Writing.

REFLECTIONS.

This Indisposition deserves the Name of a beginning, and, as yet, imperfect *Gutta Serena*, and has its Seat in the Optic Nerve, and in the Brain; for which Reason, no Fault appears externally.

externally. It arises from the cacochemical Impurity of the Blood and Humours; for daily Experience teaches us, that People of scorbutic, cacochemical, and cachectic Constitutions, are much subject to Disorders of the Eyes from an internal Cause, and that in them the Distemper is convey'd from one Eye to the other. The Itch of the Patient now under our Consideration, his bad Digestion, his Flatulencies, the Pains in his Joints, and the Singing of his Ears, all concur to prove the bad and corrupted State of his Fluids, which was originally brought on by his sedentary Life, as well as the expelling of his Body, when hot, to a sudden Cold: By this means also, a Foundation was laid for the Weakness of his Sight; for, in Consequence of this, the repressed Humours flowed more plentifully to the fore Parts of the Brain, and his Right Eye happening to be contused, obstinately crowded upon its Nerves, which were now weakened by the Contusion. It had been easier to have removed this Disorder, in its Infancy, by proper Medicines; but now it is become inveterate, and has gained so much Ground, the Task is altogether difficult. But I am not of Opinion, that we are, for this Reason, to lose our Courage, or give way to Despair: It is our Business, rather, first to attempt the rendering the Juices mild and balsamic, and then to set about strengthening and invigorating the nervous Parts which have been weakened. The former of these Intentions is answered by Decoctions of the Woods, antimonial Tinctures, absorbent and diaphoretic Powders, Purgatives made up of the Gums, and a proper Regimen, with regard to the Non-naturals. The latter is answered by Plasters, made with cephalic and aromatic Oils, liquid Balsams, and resinous Gums, applied to the Forehead and Temples: Spirit of Wine also, strongly impregnated with Camphire, and mixed with Essence of *Peruvian* Balsum; and, last of all, my *Balsamum Vitæ*, are proper in this Case. If these Means, for a considerable time persisted in, do not answer the Intention; and if the vital Juices are not, by them, rendered sufficiently sweet and balsamic, it will not be amiss to raise a gentle Salivation, which is most conveniently done by Preparations of Cinnabar, or *Æthiops Mineral*: However, after sufficiently purging the first Organs of Digestion by the Cephalic Pills, or any other proper Purge, let the *Æthiops Mineral* be given every Morning, to the Extent of ten Drams, with half a Dram of Sugar, and two Drops of the Oil of *Turkish* Balm, for three or more Weeks, as Circumstances require; and let the Patient have, for his Drink, a Decoction of *China* Root, with Raisins and Cinnamon; and use, at the same time, a proper Diet and Regimen. By this Method I have known Persons happily recovered, who, by violent Contusions of the Head, have been in imminent Danger of becoming blind, but yet not without the Use of Externals.

CASE II.

A Girl, seven Years old, of a weak and tender Constitution, and of a livid unwholesome Complexion, which often assumed a yellowish Cast, fell into a slight Fever, attended with a Pain of her Back and Head, and with a Vertigo when she stood up. On the third Day, after the Fever seized her, her Skin was all covered over with little red Eruptions; to prevent the farther spreading of which, temperating and gently expelling Medicines, together with a low Regimen, were prescribed. Notwithstanding which, these Eruptions sometimes disappeared; upon which Occasion she complained of Shiverings, and sometimes broke out again, with an intense Heat of the Skin: Besides she complained, especially about the seventh Day, of an intolerable Pain in her Head and Eyes; and when she was afterwards cured of this Disorder, she was, all on a sudden, so effectually deprived of her Sight, that she could see nothing at all: No Fault or Defect appeared externally in her Eyes, unless that the Pupil seemed to be a little larger, and more dilated, than usually.

REFLECTION.

This Disease, which brought on the *Gutta Serena*, was the Purple Fever, a Disease much incident to Children, especially those of cachectic Constitutions, who, thro' the Weakness of their Stomach, and the Want of Energy in the Bile, contract a great deal of impure Serum; for the Purple Fever is occasioned by an impure and acrid Serum, stagnating in the small glandular Ducts, which Serum is, by the feverish Commotion, protruded into the Habit. If the Quantity of this Serum is greater than it should be, or if the Constitution is weak, or, which amounts to the same, if the Patient be destitute of such Motions as are necessary for expelling it, hence it happens, that a Taint is even communicated to the solid Parts by the corrupt Juices, which stagnate here and there, and vellicate them. For this Reason we observe, that lingering Coughs, Consumptions, slow Fevers, Diarrhoeas, Head-achs and Megrims, not only accompany, but also succeed this Disease. Hence 'tis pretty plain, that in the present Case, this Serum filling upon the Head, and especially

on the Optic Nerves, brought on the *Gutta Serena*; the Cure of which consists chiefly in purging the Body of the corrupted Mass of serous Humours, which have received a Taint from the Purple Fever, and in draining them from the Head. For which Intention, besides internal Purifiers of the Blood, diluting Decoctions, Diaphoretics, and Laxatives, I say besides these, Vesicatories are of singular Service, provided only they be applied betimes; for by drawing the acrid Serum to the Skin or Surface of the Body, they rid the Head of it. Besides, we are to endeavour by mild and balsamic Stomachics, to restore Strength, and a vigorous digestive Faculty, to the Stomach, that so a generous Chyle, and laudable Juices, may be generated.

CASE III.

A Girl nine Years old, who during the whole Course of her Life had been troubled with Defluxions of Rheum, Achors, and Tumours of the Glands of her Neck, her Nostrils being sometimes extraordinarily dry, was seized with a Vertigo, and so great Pains in her Back, and Hypochondria, that a Vomiting and Head-ach coming on at the same time, she was oblig'd to keep her Bed. Growing better in a few Days, she again expos'd herself to the open Air, which was then very cold; but relapsing, she was seiz'd with a prodigious Vertigo, a Swelling of her Face, and a slight Fever, attended with the Purples. Soon after, being heated by a strong Commotion of Mind, she fell into an epileptic Fit, during which her Teeth ground strongly upon each other, her Eyes were fixed and staring, her Senses lost, and her Pulse vehement and unequal. About an Hour after she had recover'd from this Paroxysm, she became quite blind, and amidst the exquisite and racking Pains of her Head, threw up, by a Vomit, a considerable Quantity of bilious Filth. By injecting a Clyster, and administering antispasmodic, absorbent, and diaphoretic Medicines, her Vomiting and Head-ach were render'd less, but her Blindness remained the same for four Days; on every one of which the above-mentioned Paroxysms return'd. When her continual Watchings bore hard upon her, and her Pains began again to rack her vehemently, in the Evening a few Grains of the *Pilulæ de Cynoglossa* were prescribed, upon which she had an easier Night than usual; and when next Morning, she took in an Infusion, by way of Tea, a little of the *Oleum Cajaputi*, her whole Body was cover'd with a plentiful Sweat; and she all on a sudden recover'd her Sight: But an Hour after the Head-ach returning, she was seiz'd with a total Blindness; and next Day all her Spasms and Pains being lessen'd, her Sweat return'd with so much Success, that the Patient by means of its long Continuance, was, in sixteen Days time, restored at once to her Sight and Health.

REFLECTION.

1. This Case shews us what terrible Mischiefs may be produced by the acrid Serum protruded to the Skin in the Purple Fever, when 'tis retain'd within the Body. It frequently happens, that it lies dormant in the Body for some time, and only by some accidental Cause begins to exercise its Tyranny. In the present Case, two accidental Causes concurr'd, the Commotion of her Mind, and her being exposed to the Cold, by both which violent Spasms were brought upon the nervous System; and the Cold affecting the Skin, the noxious Humours were in too great a Quantity driven inwards, and especially towards the Head.
2. The Blindness which happen'd in this Case deserves to be call'd Spasmodic, since by Spasms of the external and lower Parts, the Humours, being driven forcibly upwards, affected not only the Membranes of the Brain, whence the Epilepsy proceeded, but likewise the nervous Membranes of the Eyes. Hence it happen'd, that plentiful Sweats coming on, the acrid Serum was evacuated, the Spasms banish'd, and all the other Symptoms remov'd.

CASE IV.

An Infant, scarce yet a Quarter old, was seized with the Small-pox, which not suppurating, nor coming out as it should have done, disappear'd again in three Days time. After this, the State of his Health being bad and inconstant, he was frequently troubled with Defluxions of Rheum, and before a Year was expir'd, a kind of Hardness appear'd in his Abdomen. For removing this Symptom, besides other Medicines, he had a Vomit given him twice in one Week, by which spontaneous Vomiting, and a Looseness of his Belly, were brought on, and continued for ten Days. Then these Excretions ceasing, the Swelling of his Abdomen fell, but a great Weakness succeeded; notwithstanding which a good Appetite, and a Habit of sleeping well, continued long. Last of all, he was seized with a total Loss of Sight, his Eyes remaining, to Appearance, without any Defect; his Body, tho' sufficiently muscular for one of his Age, was yet so weak and languid, that when he was raised from his Bed, his Joints seem'd, as it were, to collapse and yield under him; a Trembling frequently seiz'd his Lo-

Ans.

Arm, his Head swell'd, and it was with great Difficulty he could speak. His Belly was sufficiently loose, and his Appetite good; but his Nostrils were continually dry, and frequent Sweats broke out upon him.

R E F L E C T I O N.

The Cause of the Symptoms, which succeed the Small-pox, now at a Stand, is a *serous Plethora*, or a great Abundance of thick and impure Serum and Lymph in the Body, which is no uncommon Case with most Infants. Hence Defluxions of Rheum on the Ears, Nostrils, Eyes, and Head, are not more incident to Persons of any Age, than to Infants and Children. In our present Patient indeed, the stopping of the Small-pox laid the Foundation for the subsequent Train of Disorders; for the excrementitious Humours, which in other Cases use to be thrown off by this Species of Exanthema, being retain'd in the Body, corrupted the serous and lymphatic Juices; the Pustles not being duly thrust out, by reason, probably, of a natural Weakness of the Nerves: Hence arose the Catarrhs, and the Hardness of the Abdomen. And a Translation happening of the serous Matter to the Brain, and spinal Marrow, hence sprung paralytic Relaxations of various Parts, as of the Eyes, the Tongue, and the Nerves, which go off to the Feet and Arms.

The Cure of this terrible Disorder consists almost wholly in the Use of internal Medicines, which must be calculated at once to remove the Viscidity, and lessen the Quantity of the Lymph. I therefore think it advisable to proceed in the following Method: After purging the Body with a sufficient Quantity of *Cornachinus's Powder*, let the Patient take every Morning of the Powder made of well prepar'd Cinnabar, five Grains; Crabs-eyes, eight Grains; and of Mercurius dulcis, half a Grain. After using this for six Days, let a Laxative be again taken. And then, after taking the Powder for six Days more, let the Laxative be repeated. Under this Course, let the Patient have for his Drink a Decoction of three Ounces of Sarsaparilla Root, of the Bark of Sassafras Wood, three Drams; of Salt of Tartar, half a Dram, boil'd in a close Vessel with twelve Pints of Spring-water, which let him also drink instead of Tea. Let his Food also be attenuating, and let him eat no Flesh, but what is roasted, and *fine Wheat Bread*, and these too in a very small Quantity. After this, for about eight Days, let his Body be put into a Bath of common Water, Wheat-bran, and Pot-ash; after which, let the Nape of his Neck, and his Os Sacrum, be anointed with Unguentum Nervinum. Internally, let him continue the Use of the above-mentioned Decoction; and a little before his Meals, let him drink, in order to strengthen his Stomach, an Elixir made of the Essence of white Burnet, and red Gentian, each half an Ounce; Sweet Spirit of Nitre two Drams; and Oil of Mace, Cedar, and Cinnamon, of each six Drops. Externally, let him apply to his Nostrils the dry volatile Sal Ammoniac, impregnated with the unadulterated Oil of Marjoram. I do not in the least doubt, but the Consequences of this Method will be very good.

C A S E V.

A Boy twelve Years old, subject for some Years past to Catarrhs, Heaviness, and a Cough, a moist Season and Northerly Winds coming on, was seized with a Fever, attended with a Catarrh, which on the ninth Day was followed with a grievous Pain of the Head and Eyes, and at last, a total Blindness. No Defect appear'd in his Eyes, unless that the Pupil contracted itself, and the Boy could but just distinguish Light from Darkness; his Appetite was good, and his Stools were regular enough. After, therefore, he had laboured a whole Fortnight under this Disorder, various kinds of Medicines being used to no Purpose, he was committed to my Care; and I made use of nothing but my balsamic Pills to be taken once a Week, and Linen Cloths soaked in my Balsam of Life, apply'd twice a Day to his Forehead and Temples; by which means, accompany'd with the Blessing of Heaven, he in a few Weeks recovered his Sight entirely.

R E F L E C T I O N.

This Gutta Serena seems to be only a Bastard one, which arises from a Defluxion of Serum surrounding the nervous Parts, which serve for the several Purposes of Sight and Vision; for the Optic Nerve, inasmuch as 'tis contain'd in the Brain, is in such a Case almost free from all Hurt, and as yet brings a most subtil Fluid to the nervous Parts of the Eye, which being nevertheless compressed on all Sides by the serous Filth, become scarce fit for receiving the Rays of Light, and answering the Purposes of Vision. Hence, we frequently observe, that Infants and Children, who are of too phlegmatic Constitutions, or who are troubled with Defluxions of Rheum, labour under such Defects both of Seeing and Hearing, in which Case we prescribe Medicines against the Catarrh; but since such were in our present Case used to no

Purpose, nothing remain'd for us to do, but by corroborating and nervous Medicines, such as my Balsam of Life is, to discuss the stagnating Juices, and strengthen the weaken'd Parts. *Hoffman, Vol. 3: Cap. 4:*

Some Cases referr'd to in the preceding Dissertation.

C A S E I.

A Man thirty seven Years old, of a sanguine melancholic Constitution, had from his Infancy been addicted very much to study, and reading in the Night; but had applied himself that way in an uncommon Degree, for the last two Years, having the Education of Youth committed to his Care: For then he study'd till late at Night, and rose again by four next Morning. As he took nothing till Dinner-time, except a Glass of burnt Wine, and as he used very little Drink at his Meals, he was always inclinable to be costive. Having liv'd in this way for about two Years and an half, upon a violent Fit of Anger, he was seiz'd first with a Head-ach, accompany'd with a Sensation, which is usually call'd Fornication. After which he became suddenly blind, with a Dulness of Hearing, faltering in his Speech, and tenfive Pains in his Right Leg and Arm. Baths for his Feet were immediately order'd; and a Veni was open'd in the Left Foot, from which, as well as from that open'd in his Left Arm about a Fortnight before, no Blood was discharg'd: Upon this, Scarification upon the Nape of his Neck, and the Crown of his Head, which he had formerly been accusom'd to, but which had been omitted for the last two Years, were prescrib'd; and for removing his Costiveness, emollient Clysters were injected: Then his Sight return'd in some Degree, so that he could see better by a lighted Candle than one sees by the Light of the Moon; however he could not as yet read, but still complain'd of small Clouds before his Eyes.

I being call'd to a Consultation, prescrib'd this Powder first of all:

Take of Native Cinnabar prepar'd, Crabs-eyes, and prepar'd Amber, each two Drams; of volatile Salt of Amber, and Hartshorn, each ten Grains, and mix them up into a Powder. Let a Dram be taken for a Dose.

Then I prescrib'd the following Pills:

Take of Mercurius dulcis, and of my Pills, each one Dram; of the Extractum Panchymagogum of Crolius, half a Dram; of Extract of Castor, four Grains: Mix; and out of each Scruple make twenty Pills.

The Patient took twenty of these Pills every Morning for three Days successively; then for five Days successively, in the Morning and at Night he took the Powder: Then the Pills for three Days more; then again the Powder; and thus he us'd them alternately.

I also order'd him the following Decoction:

Take of Valerian-root, one Ounce; Balm, one Handful; Fennel-seed, two Drams: Cut and bruise them together. This Powder is to be us'd like Tea: The Patient is to receive the Steam of it into his Eyes in the Morning; and after taking the Medicines prescrib'd, he is to drink eight or ten Cups of the Infusion itself.

I also prescrib'd him my Balsam of Life, and desired him to apply it to his Nostrils, and anoint his Temples with it. I also order'd him to take eight Drops of it in the Morning, in the before-mention'd Infusion. Lastly, he daily us'd Baths for his Feet, which reach'd as far as the Calci of his Legs, made with Wheat-bran and Chamomile-flowers; and by this Course duly persisted in, he in a few Weeks recover'd the perfect Use of his Sight.

R E F L E C T I O N.

Blindness which comes on suddenly, seems to be a Palsy, and is occasion'd principally by the Separation of the Serum from the Blood, and its Stagnation about the Thalami of the Optic Nerves, the Compression of which hinders the free Influx of the Animal and Nervous Fluid into the Optic Nerves: Hence arises a Loss of Sight, the Structure of the Eye remaining at the same time, to all Appearance, unalter'd; for outwardly no Fault or Blemish can be discovered in them. This Stagnation of the Serum proceeds principally from the Weakness of the Brain, and too great a Relaxation of its Fibres, which renders the Course of the Blood thro' this Part somewhat more difficult: The Blood, in Consequence of this, remaining as it were pent up in the Vessels of the Brain, lets fall its serous Parts, which being thrown together pretty plentifully in some Place at the lower Part of the Brain, compress sometimes one, and sometimes another, Pair of Nerves; and either deprave

deprave or quite destroy the Functions of those Parts, to which the said compress'd Nerves are branch'd out and extended. In the Case now under our Consideration, too intense Application of Mind; frequent and too long protracted Watchings, together with long and obstinate Griefs, had greatly weaken'd the Brain, and the Pairs of Nerves arising from it; for such is the Nature and Tendency of these Things, that when they concur and meet together, they render the Patient subject to grievous Head-achs, Melancholy, the Palsy, the Apoplexy, and Drowsiness; to this End contributed also the Thickness and Impurity of his Blood, together with its Congestion in the Brain, all which Circumstances are to be ascrib'd to his too great Abstemiousness in point of Drink; his Use of Wine in the Morning, the stubborn Costiveness of his Belly, and his intermitting his usual Evacuations of Blood by Venesection or Scarification. We need not therefore wonder, that in such a State of the Humours and Brain; the Blood being, by the strong Commotion of Mind; thrown upon the Brain with an uncommon Force, and remaining there, should excite not only the heavy Pain in his Head, and Blindness, but also the pungent and darting Pains in his Right Foot and Arm. But since the Disorder was not inveterate, but as yet of a short standing, we may easily conceive, that there still remain'd some Hopes of restoring the Patient's Sight, provided only proper Medicines should be prescrib'd, and duly and seasonably administered.

For answering which Intention, besides Venesection, Scarification, and Purgatives, those Medicines are most proper which attenuate and discuss the stagnating Humours, and derive them from the Head, and upper Parts, to those that are lower, and less noble, and which invigorate and restore the whole System of weakened Nerves. But as right mercurial Preparations, and especially those of the cinnabarine kind, duly and seasonably administered, are very effectual for removing the stagnating Lymph, and putting it in a proper Motion, even in the remotest Parts; and as this Truth is sufficiently confirm'd, from their Use in Venereal Cases; I have, on this Account, us'd them, and that too with remarkable Success, in long and grievous Head-achs, Palsies, and Epilepsies, not only with an Intention to purge, but also to promote a Diaphoresis, which is the more easily brought about, by the Patient's drinking at the same time warm Infusions impregnated with some Substance of a diaphoretic Quality. Having therefore remov'd the Causes, and attenuated the Humours stagnating about the Thalami of the Optic Nerves, nothing is more proper than to strengthen and corroborate the Brain, and nervous System, by the Use of the richest Balsamics, as well externally as internally, and to restore their pristine Tone, and Strength, to the relax'd and weaken'd Fibres; for which Purposes my liquid Balsam is greatly to be commended. From the History, and successful Cure of this Disease, we may infer, that Mercurials; and Preparations of Cinnabar, together with the Use of Balsamics, are extremely efficacious for removing Blindness, or the *Gutta Serena*, when not old and inveterate; nor is it to be doubted, but the like Practice would be attended with Success in other terrible Disorders of the Head and Brain, which proceed from the Extravasation and Stagnation of any Quantity of the serous Part of the Blood, provided only such Disorders are taken in time. *Hoffman, Consult. Med. Cent. I. Sect. I. Cas. 42.*

C A S E II.

A certain Gentlewoman forty nine Years old, who had in her Constitution a Mixture of Cholera and Melancholy, having liv'd sixteen Years without a Husband, and had always enjoy'd a perfect State of Health, except from her Infancy, she was troubled with a small Difficulty of Breathing. This Gentlewoman, happening to be expos'd to Colds and Hardships, had her menstrual Evacuations very irregular, for the Space of two Years; sometimes they were too copious, sometimes suppress'd for three Months, and during the last Year they ceas'd entirely. Upon this, being often troubled with Inflammations of her Eyes, she always found means to remove them, till in the Month of December 1726, they return'd with double Force, accompanied with pungent Pains, and seiz'd first her Right, and then her Left Eye. Upon this, there ensued a kind of Dilatation of the Iris, and a Dimness of Sight, which by Degrees increas'd to such a Degree, that she became quite incapable of discerning any Object. Her Eyes indeed were free from Pain, but not altogether without Inflammation; and the crystalline Humour of the Right Eye appear'd whiter than in its natural State it ought to do; nor was it as yet plain, whether a Cataract, or a Glaucoma, threaten'd the Patient. In the Left Eye the Pupil only appear'd to be dilated, and the Humours turbid. For removing these Symptoms, various Means were used, such as Bleeding in the Feet, as well as in the Arms, Vesicatories, Fontanels in the Nape of her Neck,

and Arms; Baths for her Feet, Collyriums, Bags of discent Ingredients apply'd to her Eyes, Purgatives, Mercurials, Sudorifics, Millepedes mix'd with native Cinnabar, and the Spaw-waters: But the Symptoms were so far from being remov'd by these means, that they rather acquir'd new Force, and render'd the Patient very anxious and uneasy.

R E M A R K S.

If we look for the immediate Cause of this Disorder, it seems to consist partly in a Corruption and Disturbance of the crystalline and vitreous Humours of the Eye, which are naturally pellucid, which Corruption is occasion'd by an Afflux of thick and impure Lymph, and partly in the Optic Nerves being hurt and injur'd; for these, I mean the Optic Nerves, being compress'd by the Load of impure and stagnating Humours thrown upon them, on that very Account the Access of the nervous Fluid to the Retina is prevented; and the Sight being by this means destroy'd, a *Gutta Serena* is brought on, of which we may be convinc'd by the too great, and almost paralytic Dilatation of the Pupil and Iris. Since therefore these Symptoms are brought on by too great an Afflux of Humours to the Head and Eyes, and especially to those Parts that are most contiguous to the Brain, which is plain from their Redness, Pain, and Inflammation; and since this Afflux was brought on, and is still encourag'd, partly by the ceasing of her menstrual Discharges, and partly by her Commotion of Mind, and her being frequently expos'd to Colds, great Care must, in the first Place, be taken to free the Eyes of the Humours which stagnated in them, and to prevent their flowing to the same Parts for the future; and then the nervous and membranous Parts of the Eye are to be strengthen'd, and the natural Transparency of its several Humours restor'd.

This is no easy Task in this inveterate Disorder; at least, the Means commonly prescrib'd in parallel Cases, such as Setons, Vesicatories, Fontanels, Mercurials, Collyriums, Discentients, Sudorifics, and Purgatives, will all be us'd to no manner of Purpose: But you ought not for this to lose all Hopes, nor lay aside all Thoughts of recovering the Patient, especially since I find, that such Medicines, as both from Reason and Experience I have found effectual in the like Cases, have not as yet been us'd. I would therefore advise, that the Patient should have a continual Seton in her Neck, and that her Belly should be kept open; for which Purpose, two Ounces of Manna, mixt with one Ounce of Cream of Tartar, and taken twice every Week, will be very proper. She must also carefully abstain from drinking any Wine or Ale, instead of which she must use the following Decoction:

Take of Vipers-grass, of Shavings of Hartshorn, and of Sarsaparilla, each six Ounces; of Fennel-seed, and of the stellated Aniseed, each three Drachms; of Liquorice-root, one Ounce: Let these be cut, and beat together into a Powder, of which an Ounce and an half is to be boiled in three Measures of Water, for Use.

A Bag fill'd with Valerian-root, Fennel-seed, Rose-leaves, and impregnated with the Water call'd *L'Eau d'Arquebuse*, is to be apply'd to her Eyes; and sometimes she is to snuff the following Powder up her Nostrils:

Take of the dry volatile Sal Ammoniac, one Ounce; Oil of Sage, Oil of Marjoram, and Balsam of Peru, each one Dram: Mix for Use.

She will also probably receive considerable Advantage from an Infusion, by way of Tea, made of one Ounce of Valerian-root; of the Herbs Balm, Betony, Sage, and Basil, each a Handful; of Fennel-seed, and Cubebs, each three Drams: The Steam of which is to be receiv'd into her Eyes every Morning; and ten Cups of the Infusion, but less saturated, are to be drank.

It will also be worth the Patient's while, to take a Dram and an half of the following Powder, when she is going to bed:

Take of Cinnabar duly prepared, of Piony-root, of Crab-eyes, of diaphoretic Antimony, of prepar'd Amber, each two Drams; and of my Sulphur of Antimony correct'd, one Scruple: Mix into a Powder.

She must persist in this Course for a Month, and every Night use a Bath for her Feet made of River-water and Wheat-bran; but if these things should not answer the Intention, I think it advisable, in order to excite a gentle Salivation, that her Ankles and Knees be twice a Week rubb'd with mercurial Ointment. She must also sit three Quarters of an Hour every Day in River-water boil'd up with Wheat and Barley-bran; after which, she is to proceed again in the manner

manner above directed. From this Course, if as yet a Possibility of restoring Health remains, I doubt not but the Patient will find the desir'd Effects. *Hoffman, Consult. Med. Cent. 1. Sect. 1. Cas. 44.*

Celsus, speaking of Venereal Commerce, gives this remarkable Advice: *Cavendum ne in secunda valetudine, adversæ præsidia consumantur*; that is, We should be cautious of consuming wantonly in a State of Health, what should be our Support during Sickness.

As I am afraid there are many who do not attend to this Rule so much as would be convenient for them, perhaps the following Case may be of some Importance to such as have not yet utterly destroy'd themselves by an immoderate Pursuit after Pleasure.

C A S E III.

A Weakness of Sight proceeding from an excessive Effusion of the Seminal Matter.

A Youth of twenty five Years of Age, of a phlegmatico-sanguine Habit, and who, from his very Infancy, had a tender Constitution, and a pale Complexion, happen'd in the seventh Year of his Age to fall into an Atrophy, and to appear consumptive; which Misfortune was, in all Probability, occasion'd by his beginning too soon to drink Wine: But getting rid of his Disease gradually, he began to grow apace; and when about fifteen Years of Age, learnt of a wicked School-fellow, the execrable Trick of Masturbation, a Crime not to be mention'd, much less to be practis'd, in a Country where Virtue, Decency, or Politeness, have the least Regard paid them. He indulg'd himself in this vile and unmanly Practice very frequently, even almost daily, from the fifteenth to the twenty third Year of his Age, and applied himself at the same time to writing in a very small Character; by which means he contracted such an excessive Weakness of his Head and Eyes, that these latter were frequently convuls'd during his preposterous Entertainment. About four Years ago, when he was wickedly employ'd in this manner, and his Design upon the very Point of being executed, some Person or other unexpectedly knock'd at his Chamber-door; which Accident put him in so much Confusion, that the ultimate Scene of his Diversion was left unaccomplish'd. Upon this, he immediately felt so exquisite a Pain, and so vehement a Tension in his Testicles, and Spermatic Vessels, that he could not walk without the utmost Difficulty. The Force of his Genius, and the Sight of his Eyes, seem'd at the same time to be diminished and impaired. Tho' he had the Danger, with which his execrable Practices threaten'd him, full in View, yet after the Pains of his Testicles were remov'd, he was so much insatuated, as to repeat his Crime, and begin afresh his former Course; but he was soon after seiz'd with the like Pain in his Genitals, and especially in his Testicles, where the Pain was accompany'd with a very considerable Tension. By the Use of external and internal Medicines, for about half a Year, he also got this Disorder remov'd, but with some Difficulty. Soon after he was seiz'd with a Swelling in those Vessels which go to the Left Testicle. This Swelling appear'd larger than ordinary after his Meals, but was not accompany'd with Pain, unless when by his Folly he brought a Stimulus on the Parts; but tho' it was void of Pain, it was attended with another unlucky Circumstance, for it remains with him to this very Day. To this was join'd so great a Weakness of his Head and Eyes, that when he was about to read any thing, he seem'd to be drunk, and stuff'd with Wine. The Pupils of his Eyes were extremely dilated, his Eyes themselves rack'd with darting Pains, accompanied with some Degree of Tension. His Eyelids seem'd as it were loaded and oppress'd with a kind of Weight: in the Morning they were conglutinated together, and water'd very much: But this was not all, for both Corners of his Eyes, besides the violent Pains with which they were rack'd, were also clogg'd and stuff'd with a whitish kind of Matter. In this deplorable State he was oblig'd to give over Reading, and interrupt the Course of his Studies, for the Space of six Weeks; during which Time he only employ'd himself in Exercises and Recreation, and in taking the Medicines which were judg'd proper for one in his Condition: By which means he recover'd so far, as to be able to apply himself to his Studies, for two or three Hours a Day, which he can still do; but if at any time he should chance to protract his Application, and lengthen out his Studies, beyond their stated time, he is immediately seiz'd with the above-mention'd Symptoms. Besides, he was become so lean, that his Body was little more than a Skeleton; and tho' his Appetite was good, yet he was indispos'd after his Meals, and was affected with a kind of Drunkenness. But when he got a juster Sense of Things, and had, for almost the Space of two Years, abstain'd from his former Practices, and from all Commerce with Women, he began to be troubled with very frequent nocturnal Pollutions; by which he found his Body gradually more and more weaken'd,

and his Strength impair'd; so that now what seems principally to be regarded, is the Removal of this Imbecillity.

R E M A R K S.

We learn from this Account, that Venery, us'd either too soon, or too much, not only impairs the Strength of the Body in general, but also debilitates the noble Functions of the Brain and Eyes, to such a Degree, that the Loss becomes almost irreparable. But what deserves our principal Attention in the present Case, is the particular Time at which his Eyes more especially began to suffer from his continued, and almost daily, preposterous Venery. And indeed I have had an Opportunity of seeing a great many Cases where Persons well advanc'd in Years have by immoderate Venery, not only brought upon their Eyes Redness, darting Pains, accompanied with Tension, a heavy Sensation, as if a Weight was laid upon them, and a frequent shedding of Tears, but likewise such a Weakness of Sight, that they were render'd incapable either to read or write; and I have found, that in these very Cases, the Pupil was always dilated, as it is in a Gutta Serena, by reason of the weaken'd or lost Tone of the muscular and nervous Fibres which surround it: But why need I stop here? since I myself knew two Cases, in which a Gutta Serena itself was brought on by excessive Venery, and a long Series of Grief. Hence it appears, how great and surprising a Consent there is between the Seminal Parts, or rather the Spirituous Seminal Fluid itself, and the Fabric of the Eye, which is compos'd of the finest Membranes, Nerves, and Muscular Fibres, as well as the most clear and transparent Fluids. The Lymphatic Seminal Fluid is almost of the same Nature and Quality with that Fluid which is secreted in the Brain, and distributed through all the Nerves of the Body; for which Reason, the more plentiful the Evacuation of the former is, the more scanty and defective the Secretion of the other in the Brain must of course be. Hence also a Reason may be assign'd, why those Youths who begin too early to taste the forbidden Joys of *Venus*, sustain a considerable Loss of Memory, and are render'd unfit for Study; and likewise why Persons farther advanced in Years, who are excessively addicted to Venereal Pleasures, lose their Strength, and bring on a premature Death.

But to return to our Case: We find also another observable Circumstance in it, which is, that upon his leaving this monstrous Practice, the nocturnal Pollutions appear'd, the Reason of which is very plain; for the more copious and frequent the Afflux of the Humours, especially of the Seminal Matter, has been to the Organs destin'd for Generation, either by the Force of Imagination, or otherwise; I say the more frequent and copious such an Afflux has been, the more the Spermatic Vessels are dilated and relaxed, and the Seminal Juice, for that very Reason, flows into them in a greater Quantity, and lays a Foundation for those wanton Ideas, and Seminal Excretions, which even during Sleep affect People of a warm Imagination.

As for what relates to the Cure of the Disorder now under our Consideration, I prescrib'd the following Method, as most proper to be pursued:

First, let a Measure of Asses-milk, mixed with a third Part of the *Selter Waters*, be taken every Morning.

And at Night I prescribed a Dram of the following Powder:

Take of Hartshorn, philosophically prepar'd, and of Scutell-bone, each half an Ounce; of Amber prepar'd, by the Intillation of Oil of Tartar per Deliquium, two Drams; and of Cascarella-bark, one Dram: Mix up into a Powder, to be taken in Black-cherry Water.

Before and during this Cure, and after it was completed, I prescrib'd a laxative Potion, in the following Form:

Take of the best Rhubarb, one Dram; of Manna, one Ounce; of Nitre prepar'd with Antimony, five Grains: Boil and dissolve over a gentle Fire, in six Ounces of *Selter Water*; and to the strain'd Liqueur add three Drops of the Oil of Cedar: Mix for Use.

Besides, I prescribed for the Patient's ordinary Drink, this Decoction:

Take of red and yellow Sanders, China-root, and Vipers grass, of each four Ounces; of Succory-root, one Ounce; of Cinnamon, half an Ounce; and of Mallich, two Drams; Mix together, and beat into a Powder, of which two Ounces, together with a Handful of small Raisins, are to be boil'd for three Quarters of an Hour, in three Measures of Water.

Besides,

Besides, I ordered him to abstain from salt Aliment, and all aromatic Substances, as also from all Liquors of a hot Quality; but prescrib'd him Broths made of Veal, Vipers-grass, and Succory-roots; and in the Morning injoin'd him to use an Infusion, by way of Tea, made of the Herbs Mint and Balm. At last the Cure being completed, I order'd him for some time longer to persist in the Use of the above-mentioned Decoction, and of my balsamic Elixir for the Bowels; by which means I in six Weeks freed the Patient from all the Symptoms of his Disorder, and restor'd him to his usual Health. *Hoffman, Consult. Med. Cent. 2. Sect. 3. Cas. 104.*

C A S E IV.

A Gentleman's Daughter, of twelve Years of Age, complain'd of Lassitude, want of Appetite, Weakness, and darting Pains in her Legs and Arms; her Colour at the same time was livid, and somewhat resembling that of Lead. Eight Days after this she was seiz'd with a Shivering, which was succeeded by a scorching Heat, and an excessive Pain of her Head and Loins. The third Day after this the Measles, which then happen'd to be epidemical, appear'd. She was at the same time troubled with a most uneasy Cough; and by reason of the continual Pain in her Head and Eyes, could neither sleep, nor bear the now offensive Light. On the fifth Day the Eruptions disappear'd and vanish'd almost from all the Parts of her Body, but the Pain of her Head and Eyes remain'd; and she had been so coſtive from the very Beginning of the Disease, that she had no Stool, except when procur'd by a Clyster. When the Disease seem'd to be thus upon the Decline, she was unexpectedly seiz'd with a prodigious Pain in her Bowels, a scorching Heat all over her Body, Thirst, Weakness, and Difficulty of Breathing, upon which the Red-purple Fever, complicated with white or miliary Eruptions, appear'd, and the Pain of her Eyes and Head remain'd obstinate. The Removal of these terrible Symptoms was attempted by such Medicines as were judg'd proper to allay the Acrimony of the Humours, carry off the Spasms, and promote a gentle and natural Eruption: Her Head-ach gradually abating by this means, she recover'd her Health. The Force of the Disease being conquer'd, she suffer'd a Diminution of Sight, which gradually increasing, degenerated in a Month's time into a *Gutta Serena*; so that she was now incapable of discerning any Object whatever, tho' her Eyes seem'd to be in every respect entire, except that the Pupils appear'd as large again as they were in their natural State. Many approv'd Medicines were prescrib'd for carrying off this Disorder, but all to no Purpose. But her menstrual Discharges beginning to appear about the fourteenth Year of her Age, her Eyes again became capable of discerning a faint and glimmering Light. Upon this, I being consulted, advis'd, that her menstrual Discharges should be assisted and promoted by mild Balsamics, that she should apply a gentle Vesicatory for some time, that her Eyes should be frequently anointed every Day with the Fat of Vipers, and that a few Drops of my Balsam of Life should now-and-then be given her in her Aliment; by which means her Sight was not indeed totally recover'd, but yet so far restor'd, as that in a certain Attitude and Position of her Eyes, she was able to discern Objects, tho' in a very disadvantageous manner, for she only saw half of them. In every other respect her Health was good; and not long ago she entered into a married State.

R E M A R K S.

In the Small-pox and Measles, it is always a bad Prognostic, when the excessive Pain of the Head and Eyes, which usually leaves the Patient upon the Eruption, continues through all the several Stages of the Distemper; for it generally leaves terrible Disorders of the Head behind it, and in the Case now mentioned left the Patient afflicted with a *Gutta Serena*; which Distemper is, indeed, for the most part incurable; but in Infants it may be discutied and carried off, and especially in young Girls of tender Constitutions, upon the Appearance of their Menstrual Evacuations, which alter the State of their Solids as well as their Fluids, especially if Art be brought in to assist the Efforts of Nature. *Hoffman's Medic. Rational. Systemat. Sect. 1. Cap. 8. Observ. 1.*

C A S E V.

An Amaurosis, from a globous Tumour in the Brain pressing the Optic Nerves.

A Frenchman, twenty-four Years of Age, was taken with a Pain in the Head; a Fever soon followed, which being over, the Reliques of his Head-ach still remained, with Want of Sleep, and Weakness of the Head. At length, his Vision in the Left Eye began to be darkened, and a Month after in the Right Eye; and soon after he became quite blind, no Defect appearing in his Eyes. Some time after the poor Man was seized with Convulsions, which held him, with Intermissions, during the Winter: In the Spring they went off, and were succeeded by a Cough, hectic Fever, a Spitting of purulent Matter, and

a Phthisis, which, after long Molestation, brought him quite emaciated to the Grave.

The Body being opened, we discovered the Defect in his Lungs; but when we came to open the Skull, and examine into the Cause of his Blindness, by inspecting into his Brain, we found it moistened throughout with a copious watery Humour, and its Forepart, especially on the Left Side, swelled: When we had taken off Part of it, there appeared a globous Sort of a Tumour, like a Glandule, or Struma, included within the Substance of the Brain, yet separated from it, and contained in its proper hard Membrane, with capillary Veins dispersed through it. It was bigger than a Hen's Egg, uneven, and shaped like a Pine-nut; the inner Substance was white and smooth, resembling the White of an Egg hardened by boiling: It was somewhat prominent upwards, in form of an obtuse Cone, but wider at the Base, by which it rested forwards on the Ventricle of the Brain, and pressed with its Weight, which was fourteen Drams, upon the Origin of the Optic Nerves, which were compressed by it. We concluded this to be the Cause of his Blindness, by intercepting the Passage of the Animal Spirits to the Eyes, since there was no visible Obstruction, or Defect, either in the Eyes, or Optic Nerves. *Boerhaave, Lib. 1. Sect. 18. Observ. 1.*

C A S E VI.

An Amaurosis, caused by a Vesicle pressing upon the Optic Nerves, near the Place of their crossing.

In the Year 1590, I dissected the Daughter of a Burgo-master of *Holland*, aged eighteen Years. She had laboured under a Diabetes for some Years before her Death, and but a few Days before had been seized with this Sort of Blindness, in which both Eyes appeared clear; nor was there any visible Defect either in the Membranes or Humours, tho' the Patient could not so much as perceive the Light of a Candle, when held near her Eyes.

Upon opening the Cranium, I discovered a remarkable Vesicle, which pressed upon the Optic Nerves about the Place where they cross. Upon making an Incision in it, there issued about half a Pint of very limpid aqueous Matter; for when the Kidneys, through Weakness, were incapable of attracting what was drank, there commenced, by an *anæsthesia*, a Regurgitation to the Head, by which the Vesicle was formed. *Boerhaave, Lib. 1. Sect. 18. Obs. 1.*

C A S E VII.

In July 1622, the Son of one *Nicolas Blewet*, a Peasant of the Village of *Bietzwyl*, in the Canton of *Soleure*, by Name *John*, about eight Years of Age, fell from a Tree, and received three Wounds in his Head, at the Concourse and Connexion of the Lambdoidal with the other Suture, but without hurting the Cranium. Immediately he vomited up his Food indigested, and lost his Speech and Senses to such a Degree, that he was carried home for dead to his Father's House, and remained in that Condition for some Days, still vomiting whatever he received. A Barber was sent for from the neighbouring Town of *Biel*, who only took care to heal the Wounds, not troubling himself about Universals; however, he cicatrized them within three Weeks. For some time the Symptoms, as the Fever, the Nausea, and the Vomiting, were very grievous; but when after some Days they had remitted, and the Patient was restored to his Senses, it was discovered, that he was stark-blind; and on the twenty-seventh of *August*, the Father brought his Boy to me, imploring my Advice. His Eyes, as far as could be discerned by outward Inspection, had no manner of Hurt; for which Reason I signified to the Father, that the Fault lay in the Optic Nerves, which, from the very great Concussion of the Brain, and the Humours therein contained, were obstructed by some viscid Matter. I advised him, after sufficient Purgings, and Application of Cupping-glasses, to apply a Seton to the *Nucha* (Nape of the Neck). The Man carried his Boy home, to consult with his Wife and Friends about it; whether he will return, I know not; but, to speak freely, I have but little Hopes of his Sight: For I doubt not but the viscid Matter, confluent about the Optic Nerves, which should have been purged out of the Head, or drawn off to other Parts, in the Beginning, while it was yet in Motion, is, by this time, so concentered as to be incapable of being removed. *Hildanus, Cent. 5. Observ. 8. P. 389.*

C A S E VIII.

In December 1689, I attended a Woman who had been happily enough delivered of a Child a Day and a half before; but had entirely lost her Sight twelve Hours after her Delivery. This Woman was of a very full Habit of Body, and had very inconsiderable Evacuations during her Travail, as her Midwife told me, and her Purgations were at this time but inconsiderable; besides she had a very great Pain in her Head. I therefore had her bled in the Foot, as soon as I saw her in this Condition. This so seasonable a Remedy, in that urgent Necessity, proved so beneficial, that the Brain being discharged of the Plethora, which

which was the Cause of that surprising Accident, the Woman recovered her Sight the very next Day. She told me, that a Month before she was brought to bed, she had laboured under some convulsive Motions, which probably rendered her more disposed to this last Accident, from which she was entirely delivered by this Bleeding in the Foot. But thirteen Months afterwards, being again big with Child, I had her blooded thrice in the Arm, in the Time of her going with Child, and once while she was in Labour, by which Precautions she was entirely preserved from the Return of that melancholy Accident, and I happily delivered her, on the twelfth of *October* 1691, of a large Male Child, which came the natural Way. *Mauriceau, Obs.* 568.

AMAZONUM PASTILLUS, *The Amazons Troch.*, is thus prepared :

Take of the Seeds of Smallage and Anise, each six Drams ; the Tops of Wormwood, four Drams ; of Myrrh, Pepper, Opium, Castor, each two Drams ; Cinnamon, six Drams ; make them into Troches, of which give a Dram for the greatest Dose. *Galen* says, that he used to leave out the Myrrh, and instead thereof doubled the Quantity of Pepper.

In Pains of the Stomach it is taken in a Quarter of a Pint of Wine diluted ; for bilious Vomiting, in cold Water ; to those who throw up their Food, if they be thirsty, and have a Sensation of Heat about the Mouth of the Stomach, or were used to drink cold Water, when in Health, it is likewise prescribed in cold Water ; if otherwise, in warm Water ; for the Colic and Gripes, in a Decoction of Myrtle ; and for a disorder'd Spleen, in a Quarter of a Pint of Oxymel. *Atius Tetr. 3. Serm. 1. Cap. 11.*

AMBA, a Name for the MANGA, Mango-tree. See MANGA.

AMBAIBA. This is the *Ambaiba Brasiliensis* of MARGGRAV. *Pison. Raii Hist.*

This Tree is of a beautiful Height, almost perpendicular, and in general without Branches, which, in those that have them, grow only at the Top.

The outward Bark resembles that of a Fig-tree, and consists first of a thin ash-colour'd Cuticle, under which lies a thick, clammy, green Bark. The Wood is white, like that of the Birch-tree, but soft, and easy to break.

The Trunk is of a moderate Thickness, and entirely hollow from the Root to the Top ; and this Cavity is divided, or intersected throughout, at every half Finger's Distance, by a transverse Membrane, in the Middle of which is a round Hole, about the Bigness of a common Pea. It is of a Liver-colour, and red Ants are always found in it. Towards the Top grow the Leaves in a circular Order, as in the *Mamzeira* or *Papane*, each on a thick Pedicle, two or three Foot long, of a Reddish-brown on the Outside, and spongy within. The Leaf itself is broad, round, and of the Bigness of a whole Sheet of Paper expanded, and sometimes larger, indented with nine or ten Laciniae or Jags, in whose Centre stands the Pedicle, from which a reddish-brown Rib runs lengthways thro' each of the Laciniae or Jags, and many prominent Veins obliquely. They are of a very deep Green on the Upper side, and of an Ash-colour underneath, and seem in the Whole, something of the Colour of Blood mixed with Water, rough like the Leaves of the Fig-tree, and have an ash-coloured Line or Border round the Edges of the Laciniae or Jags. The Cavity at the Top of the Tree contains a white, succulent, pinguious Pith, with which the Negroes are very successful in healing their Wounds.

The Tree receives its Increase in this manner : At the Top there is an oblong, foliaceous, hoary Capsule, which contains in it one Leaf, and two or three, or four lesser Capsules. When the outermost Capsule opens or unfolds itself, the Tree is augmented with a Leaf, and becomes sensibly higher. This Leaf, even when wrapt up in its Capsule, is of the Bigness of a Trencher ; and when the Capsule opens itself, is discovered beautifully folded up, and upon its first Appearance, strikes the Eye of the Spectator very agreeably, being hoary and of a faint-green Colour at the Bottom, and at the Top red and shining like *Morocco* Leather. In the Centre of the Leaf, where the Pedicle is inserted in the superior Surface, something like a reddish Star appears, adorn'd with faint Streaks of Green and Yellow, and is probably the Centre of all the Nerves, which being shining and of a faint-yellow Colour, are longitudinally distributed thro' all the Jags. When the outer Capsule is open'd, the other lesser ones successively unfold themselves, and present us with Leaves of the same Kind.

The Flowers come forth on a short Pedicle from the upper Part of the Trunk where the Leaves grow, and hang four or five in a Cluster like so many Saucages. They are of a cylindrical Form, six, seven, or perhaps nine Inches long, an Inch thick, hollow within, and their Cavities stuffed with Down ; they are soft, but towards their Surfaces have Kernels of a brownish Colour ; the Flowers falling off, the Kernels grow

somewhat larger, and may be eat, when the Husks, in which they are inclosed, are taken off with one's Teeth. These Trees grow to great Height in a very short Time.

Without the Assistance of Flint and Steel, the *Brasilians* extract Fire from it in this manner : They take the Fruit, or rather a Piece of the Root of this Tree dry'd sufficiently for their intended Purpose ; in this they bore a small Hole, into which they thrust a sharp-pointed Piece of hard Wood ; and by giving this a quick and rapid Motion, resembling that of a Piercer, whilst they hold the Fruit, or Piece of the Root fix'd by their Feet, the Attrition of the Parts produces such a Degree of Heat, as is sufficient to kindle any combustible Matter that is apply'd to it, such as dry Leaves of Trees, or Cotton.

It is rarely found in Woods ; but is for the most part to be met with in Fields, that have been formerly cultivated.

The fat Juice express'd from the Tops of this Tree, is of Use in the Cure of inveterate as well as recent Ulcers. Its Leaves, when fresh and tender, or the finer Part of its Bark, deterge the Part affected, and assuage its Pain.

The Juice express'd from its Buds, is of a cooling and astringent Quality ; and when mix'd in a proper Quantity with a Mefs of Gruel made of a farinaceous Substance, which the *Indians* call *Tipioca*, stops such Fluxes of the Belly, as are occasioned by a Redundance of Humours preternaturally hot. It checks immoderate menstrual and seminal Discharges ; and *Piso* asserts, that he has experimentally found it to be remarkably beneficial, apply'd by way of Cataplasin to the Navels of Women, who laboured under immoderate menstrual Discharges after Delivery. *Raii Hist. Plant.*

AMBAITINGA. The *Ambaitinga* of *Piso* and *Marggrave* has Branches of a reddish Colour ; its Wood is of a pretty close Contexture, and its Leaves, towards their Tops, are of a bright, and, towards their lower Parts, of a languid Green, and at the same time so rough, that some Substances may be polished with them instead of a File. This Tree contains an oily Liquor of the same Use and Efficacy with the Juice of the *Ambaiba*. It bears a large but slender Fruit, about a Hand's-breadth in Length, and, when ripe, is sweet, and may be eaten. *Raii Hist. Plant.*

AMBALAM. This is the Name of an *Indian* Tree, call'd also *Mangæ affinis flore parvo stellato, nucleo majore offeo*. It is a high Tree, not stretching its Branches upwards, but spreading them out pretty far in a transverse Direction. It grows in sandy Soils. It has a long Root, from which many Fibres spring forth. Its Trunk is so large as to fill the Arms of a Man. The Wood of it is soft, and covered with a thick Bark. Its large Branches are of an ash, and its small ones of a green Colour, and besprinkled with a Dew of a Sky-colour. Its Leaf consists of a double Pair of lesser Leaves, terminating with an odd Leaf. These lesser Leaves are of an oblong-round Form, their Length is almost the double of their Breadth, and they terminate in a small contracted Point. They are of a close Contexture, soft, smooth, and both their Sides shining, with a lively Green on the superior Part, but somewhat fainter underneath. From the Middle-rib, the Nerves distribute themselves in transverse, straight, and parallel Directions. Many Flowers sprout forth at a time, from the tender Twigs, that spring from the larger Branches. These Twigs, as well as the Leaves, are of a bitterish acid Taste, somewhat resembling the Taste of the Fruit produced by the Mango-tree. Their Smell is likewise strong and acid. The Flowers are small and white, having the Appearance of little Stars, consisting of five or six slender, but pointed Petals, which towards their Extremities are contracted into small Points, and are somewhat hard and shining. In the Middle of the Flower, is a yellow little Heart, which is the Matter of the future Fruit, and is surrounded with ten, twelve, or more *Stamina*, according to the Number of the Petals. These *Stamina* are small, slender, white, and yellow at their Tops. From the very Middle of this little Heart five or six Points, or small Styles, arise. When the Buds of the Flowers begin to shoot forth, the Tree is stript of its Leaves, and remains destitute of them all the Time the Bud is flourishing, but reassumes its Foliage when the Fruit appears.

The Fruit hangs in Clusters from the Twigs and Stalks, which are long, thick, pliant, bended, and of a yellowish Ash-colour. It is of an oblong-round Shape, hard, and resembling the Fruit of the *Mango*. It is of a lively-green Colour, when almost ripe ; then it becomes yellowish, and is gratefully acid both to the Taste and Smell. Its Pulp may be eaten, and contains in it a large hard Kernel, which almost fills the whole Cavity of the Fruit, has its Surface wove over in Form of a Net, with a whitish kind of woody Nerves ; and under this Net is here-and-there selt, so that it will yield to any sharp Instrument ; but 'tis hard within. This Tree flourishes and bears Fruit twice a Year.

Its Root, us'd by way of Pessary, promotes the menstrual Discharge when suppress'd. Its Bark, reduced to a Powder, and drank in acid Milk, is beneficial in *Dysenteries*, which Intention is also answered by its Juice mix'd with Rice, of which two Ingredients, that kind of Bread, commonly called by the

Natives

Natives *Apen*, is made. A Decoction of its Wood is given with Success in Gonorrhœas; and its Fruit, pounded, and mix'd with the Juice of its Leaves, allwages Pains in the Ears, if put into them.

The *Cat-Ambolam* so nearly resembles this Tree, that Botanists have scarce thought it worth their while to spend Time in enumerating the Particulars in which they differ: They only tell us, that the Leaves of the Cat-Ambalam are of a smaller Size, and less oblong; that its Fruit is less oblong, somewhat rounder and smaller; that it has a bitterish acid Taste, and is not produced in such Abundance as the former; for which Reason it is not so much used in Food.

Its medicinal Virtues are the same with these of the Ambalam. *Raii Hist. Plant.*

AMBAPAI, the Name of an *Indian* Tree, called also MAMOERA, which see.

AMBARE, *Ambare Indica*, Garc. Acoft. Trag. *Ambares*, Cast. *Arbor Indica*, foliis juglandis, fructu nucis magnitudine, C. B.

It is a large and thick Tree, growing in the *Indies*; its Leaves are as large as those of the Walnut, but of a clearer Green, beautify'd with many Veins or Nerves; it hath small white Flowers; its Fruit is as large as a Nut, green at first, having a strong Smell, and a rough Taste; but as it grows ripe, it acquires a yellow Colour, an agreeable Smell, and a pleasant acidish Taste; it is full of a hard cartilaginous Pulp, interwoven with many little Veins; they season it with Vinegar and Salt. It creates an Appetite, and precipitates the Bile. *Lemery de Drogues.*

AMBARVALIS, this is the Flower of an Herb, which flourishes at a particular Season, when Processions are made thro' the Fields. It seems to have received its Name from the *Latin* Word *Ambire*, *Blancard. Lexic.* The Author here means the Flower of the Herb called *Polygala*, or *Milkwort*. See POLYGALA.

AMBE, ἀμβη, a surgical Instrument, taken Notice of by *Hippocrates* in his *Treatise de Articulis*, Sect. 6. Of this I have given a Figure from *Heister, Tab. 31. Fig. 4, 5.*

This Machine consists of a Fulcrum A A, and a moveable Lever B C, which is brought under the dislocated Shoulder, and fitted to it by Deligation with several Fillets, as you see represented Fig. 5. This done, the Extremity B of the Lever is warily and leisurely to be pressed downwards, which causes the other Extremity C of the Lever to move upwards; by which means the dislocated Arm will be extended, and its Head, which had slipped out of Joint, will be gently forced up into its natural Place. This Operation has been so frequently successful, that the Machine acquir'd a great Name, and is to this Day called the *Ambe of Hippocrates*. But tho' in those Cases where the dislocated Arm is protruded downwards, it has oftentimes been eminently successful, and may still be so; yet when the Head of the Shoulder falls either on the Inside or Outside of the Scapula, as is generally the Case; and since this Machine only elevates strait upwards, it often fail'd of affording the Help required; nay further, if the aforesaid Head should, by the Strength of the Muscle, or the Violence of the Luxation, be protruded with uncommon Force to the hinder Part of the Scapula, it will not sufficiently extend, but violently compress the Head in its Motion against the lower Margin of the Pit of the Scapula, to the manifest Hindrance of its Restoration into its natural Place; and at the same time may bruise, and occasion acute Pains; for which Reason, to omit other Defects at present, it has long lain neglected by many, or rather wholly thrown aside. *Heister, P. 1. L. 3. Cap. 7. vi.*

Galen, in his *Exegesis*, explains ἀμβη by ἐπρωδὴς ἐπαύλασις, an Eminence like a Border; and says, that the whole Machine takes that Name, because its Extremity runs out with an Edge like the Lip or Brim of a Pot towards the interior Cavity, which, as well as the Edge or Border of any thing on the Top or Extremity, are signify'd by the Word ἀμβη, *Ambe*.

Of all the ways of restoring a Luxation of the Shoulder, the best is what follows: Let there be a Piece of Wood of the Breadth of four or five Fingers, and about two Fingers, or somewhat less, in Thickness, and two Cubits, or a little less, in Length, having one Extremity round, and very narrow and slender in that Part. From the Top of the round Extremity, let there be a Lip [ἀμβη] a little prominent on one Part, which must not be towards the Ribs, but towards the Head of the Arm, under which being placed, it may be fitted to the Armpit close by the Ribs. The Top of the Piece ought also to have some Linen, or soft Filleting, glued upon it, to render it more easy. Things being thus prepared, the Head of the Piece must be intruded under the Armpit, between the Ribs and the Head of the Arm, as far inward as possible; after which the whole Arm is to be extended on the Wood, and tied to it above the Cubit, at the Cubit, and at the Wrist, that it may rest thereon with the greatest Firmness. But we must principally endeavour to intrude the Head of the Piece as far as may be under the Armpit, and beyond the Head of the Arm. This

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done, a small Beam is to be firmly ty'd across two Posts, upon which Beam, the Arm, with the Wood to which it is fasten'd, must be laid in such a manner, that the Arm shall be on this Side, the Body on the other, and the Beam under the Armpit. Then the Arm with the Wood is to be pressed down on one Side of the Beam, and the rest of the Body on the other. The Beam is to be ty'd so high, that the Body may stand on Tiptoe.

This is by much the best way of setting the Shoulder; for the Operation is exactly by way of Lever, provided the Wood enters beyond the Head of the Arm, the Librations on either Side are very just, and the Bones of the Arm in perfect Security. Fresh Luxations are restored with a Quickness beyond Imagination, and hardly give room for Extension; and as for inveterate ones, this is the only way to cure them, unless thro' Length of Time, the Socket, that should receive the Head of the Bone, be filled with Flesh, and the Head of the Arm, by long Continuance under Luxation, has worn itself a Place. Yet I am apt to think, that an inveterate Luxation of the Arm will give way to this Operation; for what will the Power of the Lever not move? tho' I don't believe the Bone then restored would abide in its Place, but slip out again as usual.

The same Effect, after a like Preparation, would be produced by Depression over a Ladder, and the *Theffalian* Chair would serve very well for a recent Luxation. The Piece of Wood must be prepared as before, and the Patient placed sideways in the Chair, and the Arm with the Wood stretched over the Back of the Chair; then on one Side the Body is depress'd, on the other the Arm with the Wood; and the like may be effected over a folding Door; either of these Methods may be used as Occasion requires. *Hippocrat. πρὸ ἀρθρώ.*

AMBELA, the Name used by the *Turks* and *Persians*, for a Tree thus distinguished:

Arbor exotica, fructu racemoso, Charamais dicta, C. B. Charamei Acoftæ, folio pyri, J. B. Charamæi. Purging corner'd Hasel-nuts.

There are two Kinds of this Tree, called *Charamei* by all the *Indians* generally; but the *Persians* and *Arabians*, *Ambela*. The one is as great as the Medlar-tree, with Pear-tree pale great Leaves, and yellowish Fruit, somewhat like to Hasel or Filberd-nuts, ending in sundry Corners, of the Taste of four Grapes, yet more pleasant, which they pickle up as well ripe as unripe, and usually eat them with Salt. The other Kind is of the same Bigness, but hath lesser Leaves than the Apple-tree, and a greater Fruit, which the *Indians* use, being boiled with Saunders, and give the Decoction against Fevers. The Bark of the Root of the former Kind, which groweth by the Watersides, is chiefly used (so as it grow far from the Sea) which yieldeth Milk, by taking four Fingers Length thereof, which being bruised with a Dram of Mustard-seed, they give to those that are purfy and short-winded; for it purgeth mightily both upwards and downwards: But if a Super-purgation chance thereupon, they give one of the Fruits of Curambolas to help it, or else a Draught of the Vinegar of Canara (which is nothing else but the Decoction of Rice) set by for a Day, two or three, until it grow sour. The Fruit is familiarly eaten through all Parts, unripe as well as ripe, and pickled, or eaten with Salt and Vinegar to procure an Appetite, putting it to their Meat to give them a Relish, by reason of its Tartness. *Parkinson's Herbal, P. 1638.*

AMBERBOI, the *Turkish* Name for the *Cyanus Orientalis* Odoratus. *Sweet Sultan.*

Mr. *Vaillant*, in the *Memoires* of the Academy of Sciences for 1718. enumerates the following Sorts of Amberboi:

Amberboi flore purpureo odorato. Cyanus floridus odoratus Turcicus, sive Orientalis, major, Park. Theat. 481. The Purple Sweet Sultan.

Idem flore incarnato odorato. Cyanus floridus odoratus Turcicus, sive orientalis, major, flore incarnato. H. L. Bat. & J. R. Herb. 446. Sweet Sultan, with a pale Flower.

Idem disco candido, cum corona dilute lantihina, D. Lippi.

Idem flore albo. Cyanus floridus odoratus Turcicus, sive orientalis, major, flore albo. H. R. Par. The white Sweet Sultan.

Idem flore luteo odorato. Cyanus floridus odoratus Turcicus, sive orientalis, major, flore luteo. H. R. Par. The yellow Sweet Sultan.

Amberboi alterum, flore purpureo, cum corona amplissima. Cyanus orientalis alter, sive Constantinopolitanus, fistuloso purpureo flore. H. R. Par. & J. R. Herb. 446. Item, Cyanus peregrinus, Amberboi sive Emberboi dictus. Ambros. 187. & J. R. Herb. 446.

Idem flore candicante, cum corona amplissima. Cyanus orientalis alter, sive Constantinopolitanus, flore fistuloso candicante. H. R. Par.

Idem flore luteo, cum corona amplissima. Cyanus orientalis, flore luteo fistuloso. A. R. Par. 75.

Idem foliis magis difficilis. Cyanus orientalis major, foliis magis difficilis, flore luteo, ex Aleppa. Hist. Oxon. 3. 135. No. 8.

R r r

Amberboi

Amberboi erucæ folio, majus. Jacea foliis erucæ lanuginosis. J. R. Herb. 444. *Jacea major exotica, ad foliorum margines spinulis donata.* Pluk. Tab. 39. Fig. 3.

Amberboi erucæ folio, minus, D. Lippi.

Monsieur Lippi found this last Sort betwixt *Alexandria* and *Rosetta*. There is a Figure of it in the Memoires of the Royal Academ. of Sciences for 1719. with the following Description:

The lesser Rocket-leav'd Amberboi has a single Root a little bent, two or three Inches in Length, about the Thickness of two Lines at the Neck, insensibly diminishing till it comes to end in a Thread, and from Space to Space shooting forth capillary Fibres. The Bark is of a dirty White, covering a ligneous Substance of a whiter Colour.

From this Root arises a Stalk from nine to eleven Inches in Height, sending forth Branches at Intervals; it is about two Lines thick at its Origin, lessening by Degrees to the Extremities of the Branches and their Sprays, which have no more than a third, or a quarter of a Line in Thickness. This Stalk is solid and substantial, of a pale-green Colour, slightly striated in its whole Length, and bespread with dirty white Hairs, the longest of which don't exceed a Line. When cut, the Inside appears of a clearer Green, and whiter than the Bark.

The Leaves of this Plant are of a muddy Green, deeply enough colour'd above, but paler under. They are almost flat, thin, without a Pedicle, disposed in alternate Order, and covered with whitish Hairs. The great Leaves adorn the Bottom and Middle of the Stalk, and the principal Branches; the smaller Leaves set off the rest. All the Branches, and smaller Boughs, proceed from the Bosom of a Leaf. Among the great Leaves, which well enough resemble those of a kind of Rocket, some are three Inches or three Inches and a half in Length, and an Inch, or fifteen Lines in Breadth, being very deeply jagged on each Side, some into four, others into five Lobes, from six to seven Lines in Length, and from three to four in Breadth, each indented also in several Places, a little rounded, and terminating in a yellowish-green, and, as it were, dry Point, which is very short, and not prickly. The two great Lobes, which jointly terminate each Leaf, are also indented like the others. The wavy and indented Wings, which are observed in some Places of the Stem and the Branches, seem to belong to these Leaves, being nothing but Appendages to their Lobes. Most of the small Leaves keep well enough the Figure of the great ones, though their Lobes are not so much indented. Among the Leaves, that adorn the Tops of the Branches and Sprays, some are from two to nine Lines in Length, and from half a Line to a Line and half in Breadth; some of them also have a single Indentment, others have none, but are entire, resembling the Leaves of *Linaria* (Toad-flax).

The main Rib of all these Leaves, as well as the Fibres, which it communicates to their Lobes, are of a whitish Green; they form Ridges above, and rounded Ribs underneath.

The Flowers have hardly any Smell, are of a gridelin Colour, and are surrounded with hermaphrodite Fleurets. The Stalk, Branches, and Sprays, produce no more than a single Flower at each Extremity, which is distant sometimes six Lines, sometimes an Inch and half from the last Leaf.

The Diameter of each Flower is about nine Lines, of which the Disk commonly takes off two Lines and an half, or three Lines. The Disk consists of fifteen or eighteen regular and hermaphrodite Fleurets, three Lines long, standing out of the Calyx two thirds of a Line, which is nearly the Length of the Indentments of their Pavilion, and the half of their Depth; the other half, which is white, and their cylindrical Tube, which is about a Line and half long, and almost one fifth of a Line in Diameter, are sunk within the Calyx. The Pavilion is also cylindrical, cut with five equal Jags, of a gridelin Hue, opens very little, and is no more than about half a Line in Diameter. The Extremities of the five Cuts, or Jags, roll and curl up on the Inside. From the lower and inner Part of the Pavilion, arise five Stamina, whose Apices unite in one cylindrical striated Tube, a Line and half in Length, and a quarter of a Line in Thickness, sunk half a Line within the Mouth of the Pavilion: This last is white, but the rest, which appear above the Mouth, is of a purple Colour.

The Bottom of each Fleuret rests upon a white Ovary, about half a Line high, and a third of a Line thick, the Head of which is adorned with an antique Crown, which is much about the same Height. From the Head of the Ovary proceeds a capillary Trunk, which passing through the Fleuret, and the Tube, comes out at last from the latter about half a Line, including its two Horns, which are of a gridelin Colour.

Ten or a dozen barren and irregular Fleurets, resting each on a false Bud, commonly form the Crown of this Flower. The Tube of each Fleuret is white, cylindrical, of the Length of two Lines, and above one fifth of a Line in Diameter, wholly sunk in the Calyx, and terminating in a Pavilion, from three and a half to four Lines in Length, and two in Breadth in its Fore-part. This Pavilion is a sort of a Mouth, almost close,

whose upper Lip is regularly cloven on this Side the Origin of the Pavilion, into three Laciniae nearly equal, and sometimes into two. The lower Lip is entire, more short, though inconsiderably, than the upper, and a little wider than its Divisions.

The Placenta is cover'd with white Hairs, of the Length of two Lines, or two Lines and a half, amongst which the Ovaries are lodged.

All these Parts are contained in a scaly Calyx, shaped like a Pear, about four Lines in Length, and two and a half or three Lines in Diameter in its thickest Part, which is towards the Base. The Scales are oblong, entire, green on the Back, white on the Edges, covered with whitish Hairs, and terminating in a little dry Beak, about a Line in Length, and of the Colour of Wood, whose Basis is brown. These Scales shine like Silver, on the Side towards the Cavity of the Calyx. The largest are not above two Lines and a half in Length, from the Beak to the Unguis or Bottom, and almost a Line in Breadth.

The Ovaries, when thoroughly ripe, are of a conic Figure, of the Colour of Wood, hairy, channelled according to their Length, which is no more than a Line, and not half so much in Diameter at the Base, which supports an antique Crown. This Crown is open a Line and half; its Rays are white, shining, unequal, the longest being two thirds of a Line, and the shortest only a fourth Part. At the Point of the Ovary may be observed a small Cavity, in which was articulated a fistulous Nipple, whence proceeds an umbilical Cord, which affords Nutriment to the Seed contained in that Ovary.

This Plant is annual, flowers in *June* and *July*, and yields ripe Seed at the Beginning of this last Month.

Having chewed the Leaves, I found them at first of a disagreeable Taste, after which, they left somewhat of an acid Savour in the Mouth.

The Juice of the Root, Leaves, and Flowers, turns blue Paper red. *Memoires de l'Acad. Roy. des Scienc.* 1719.

AMBIA *Monard.* Is a yellow liquid Bitumen, smelling like *Tacamahaca*; it flows from a Fountain situated near the *Indian* Sea.

It is resolutive, strengthening, and lenitive; it cures Tetters, and the Itch; they also use it against cold Humours; it has the same Properties as the Gums *Caranna*, and *Tacamahaca*. *Lemery de Drogues.*

AMBIDEXTER, ἀμυδῆς. It imports the being as strong, ready, and adroit, with the Left Hand, as with the Right, as if the Person had two Right Hands. This, *Hippocrates* pronounces, never happens to Women. *Aphor.* 43. *Sect.* 7.

AMBIOSIS, ἀμβλωσις, a Miscarriage. See **ABORTUS**.

AMBLYOGMOS, ἀμβλωγμός, from ἀμβλύνω, dull. Dimness of Sight.

This Word is frequently made use of by *Hippocrates*. Thus in his Book of Prognostics, he takes Notice of this Dimness of Sight, together with Coruscations of Light seeming to dart before the Eyes, amongst the Symptoms of an approaching Hemorrhage, in continual Fevers, and genuine Tertiars. Again (*Prædict.* L. 1. 18.) he mentions a Noise in the Ears, accompany'd with Dimness of Sight, and a Sense of Heaviness at the Nose, as the immediate Forerunners of a violent Delirium in a burning Fever.

Sometimes this Author makes use of the Word ἀμβλωσμός, Amblyosmos, to express the same thing. *Galen* indeed explains ἀμβλωσμός, a Miscarriage; but *Forcius* thinks it a Mistake for ἀμβλωσμός, Amblosmos, in which he seems to be right.

AMBLYOPIA, ἀμβλωπία, from ἀμβλύνω, dull, and ὤψ, the Eye. In *Hippocrates* it signifies that Dimness of Sight which old People are most subject to; and in this Sense it is used *Aph.* 31. *Sect.* 3.

But *Paulus* and *Actuarius* use this Word to express an Amaurosis, or Gutta Serena.

The ἀμβλωπία, is an Hebetude, or Dullness of Sight, which has a manifest, but not visible Cause. For since neither the Tunics nor Humours of the Eyes appear to be alter'd, the Fault must necessarily lie in the Defect or Interception of the visual Spirits, caused either by a preceding Preclusion or Obstruction of the Nerve, that convey'd the Light, or the Brain being in part disorder'd; any of which Causes is sufficient to stop the Course of the Spirits: Whence the Eyes are in the same State as Candles, which are full and complete in all the necessary Requisites, and want nothing but Light to illuminate them. *Actuarius de Meth. Med. Lib.* 2. *Cap.* 7.

AMBON, ἄμβων the Edge, or Margin of those Cavities or Sockets, into which the prominent Parts of Bones are inserted in some Sorts of Articulation, as in that of the Femur into the Acetabulum. *Castellus.*

AMBRA is the common Name which the *Italians* and *French* have for *Succinum* or *Electrum*. *Ambra* also is the vulgar Word, which the same People use, to signify what the *Arabians* call *Ambar*; but this is a thing quite different from *Succinum*.

Therefore,

Therefore, though they would have the same Name to belong to them both, yet, for Distinction sake, they have of late called this latter Kind of Ambra, *Ambra grisea* (Ambra grisea).

Whence this Term *Ambra*, used by us for *Succinum*, is derived, I know not; for the *Arabians* call it *Karabe*, as you find it in an old *Latin-Arabic* Glossary, *Karabe Succinum*. A *Saracen* Lexicon in the *Vatican* has it, *Κάρεβε, τὸ ἡλεκτρον*. But there it is also written *κίερον*, and in another *κίερον*. *Avicenna* assures us, that it is a *Persian* Word, which signifies an *Attractor of Straws*; so indeed it is in the *Latin* Translation: But *Avicenna*, speaking in *Arabic*, does not say, that it is a *Persian* Word; and the *Arabic* Term in his Book is written *Kerabe*, with *Kef*, not *Kaf*, as it is in the old Glossary. He says, that it attracts Straws, and Bits of rotten Wood, and thence took its Name in *Arabic*, *Kerabe*, which signifies an *Attractor of Straws*.

The *Greeks*, however, 'tis certain, called Amber *ἄμμιον*, "*Harpax*," on the same Account. *Pliny*, *Lib. 37. Cap. 2.* says of Amber: "In *Syria* the Women make Whorles of it, " and call it *Harpaga*, "Snatcher," because it snatches to itself Leaves, Straws, and Edges of Garments."

That Amber is a Species of Bitumen, is generally agreed; and *Car* too by the *Arabians* is reckoned among the Kinds of Bitumen. *Alchar*, or *Alchir*, in *Alpagus*, is the Matter of a natural Vein, fluid, and like Pitch, which bubbles out of the Earth, like Water out of a Spring, in the Country of *Bagaded*; and as soon as it gets above Ground, becomes thicker than liquid Pitch, being condensed by the cold Air; the *Arabians* commonly call it *Chur*. He plainly describes to us some liquid Bitumen, or Naphtha. The same Author, under the Word *Kir*, or *Kar*, informs us, that it is something which is like Pitch, that it flows from Springs in the Territories of *Bagaded*, and is the same as *Chur*, or *Kur*, to which Word he refers us. *Car*, or *Adkar*, is the *Naphtha*, which the Antients inform us, issued out of Springs in the Country about *Babylon*, after the manner of liquid Bitumen. In *Arabic* it is called *Kar*, or *Alkar*, and is the very same with *ἄζδα*, (*Naphtha*) and called by the *Arabians* also *Nafth*. As to the Opinion of *Alpagus*, that *Kar* is the same with *Chur*, I don't doubt but it was commonly so pronounced. For after the same manner they say *ussach* instead of *assach*, and *usfen* for *asfen*, and so of an infinite Number of others. But under the Word *Chur*, to which he refer'd us for a fuller Explication of *Kar*, he expounds it, according to the Opinion of the *Arabian* Interpreters, to be the *Sordes*, that stick to the Walls of Bee-hives. This *Kur* is quite a different thing from the *Kar*, which is a kind of liquid Bitumen, and is written otherwise; viz. *Kaar*, with the middle Syllable *Am*, not *Elif*. They call the *προπόλις*, (*Bee-glue*) of the *Greeks*, and Wax itself, by that Name, which may seem to be derived from *Κηρός*, or *Καρός*, "*Ceros*," or *Caros*." *Bellunensis*, at the same Passage, adds, that according to some Writers, *Kar* is to be taken for *Bdellium*, in the second Canon of *Avicenna*, in the Chapter of *Dadi*, where he says, that in its stead, there were put two thirds of a Pound of *Kur*. But in the *Arabic* you don't read *Kur*, but *Luz*, or *Lauz*, that is, an *Almond*; instead of which, the Interpreter seems to have read *Kur*, which in that Place can signify nothing to the Purpose. *Kur* is a *Furnace*, or *Fire-place*, and some take it for a Hive; but a Hive is called *Kouvarah*, the Plural of which is *Kouvarath*; from whence perhaps, the later *Greeks* have used *Κυβέρη*, and *Κυβέρη*, (*Kuberte*, and *Kuberton*) for a Bee-hive. *Hesychius*: *Κύψελον, Κύβερον μελισσών*, "*Cypselus*, a Hive of Bees." But the *Sordes* which sticks to the Walls of Bee-hives, is not called *Kur*, but *Kar*. Some render it *Wax*. But the *Propolis*, or *Sordes* of Bee-hives, is by *Avicenna* called *Almum*, of which he makes two Sorts, the *Pure*, and the *Black*. The pure *Almum* is spoken of the waxen Cells in which the Bees stow their Honey; and this is the true Wax. Hence an ancient *Arabian* Author interprets the *Κηρός* of *Dioscorides* by *Almum*. Others call Wax *Xemba*, which was the Name given by some to the *Propolis* of the *Greeks*, called by *Avicenna*, *Almum alafnad*, "*black Mum*," that is to say, *black Wax*. This is a Substance found about the Mouths of Bee-hives, and may be said to be *Κηροειδής*, "*somewhat like Wax*," rather than *Κηρός*, "*Wax*."

To resume our Discourse on the *Karabe*, or *Succinum*, it has a great Agreement with Bitumen. *Scrapius*, we know, speaking the Opinion of some Authors, says, that the Bitumen Judaicum was called the *Karabe of Sodom*, and was the Gum of Funerals. This was the Asphaltum, or Pissasphaltum, which they used about the Bodies of the Deceased, and called *Mumia*. And because Carcases, especially those of the poorer Sort, were embalm'd with Bitumen, hence one Name came to serve both for the Bitumen and the Funerals, of which it was a principal Part of the Apparatus. *Strabo*, *Lib. 16.* *Χρῶνται δ' Ἀργυπῆσι τῇ δασυτέρῃ πρὸς τὰς ταρχύας τῶν νεκρῶν*. "*The Egyptians use Asphaltus for embalming of the Dead*." The *Mumia* of *Avicenna* is the Pissasphaltus.

I was once of Opinion, that the Word *Mumia*, for a Funeral thus prepared, was a Corruption of the *Greek* *ἀμμία*,

"*Amomia*;" for the Antients did, for the most part, embalm Carcases with Amomum. Hence we meet with *Triphle Amomum*, "*mournful Amomum*," in *Statius*; and *Craffus lutatus Amomis*, "*bedawb'd with thick Amomum*," in *Persius*, of the dead Body placed in order to be carry'd forth; and in *Ovid* we read *Ossa Pulvere Amomi condita*, "*Bones seasoned with the Powder of Amomum*." The old Scholiast also, in a very antient Copy of *P. Aegineta*, at the Word *ἀμμιον*, "*Amomum*," remarks, that it is what the *Arabians* commonly call *Mumia*, "*Ἀμμιον δ' λεγεται μύμιον*. In *Myrepsus* *μύμια*, "*Mumia*," signifies the Sanies of a human Carcase. In his Antidote *Athanasia*, *αἷμα ἀνθρώπου τεθνήσκον ἐν δὲ κελύφῃ παρ' Ἰταλοῖς μύμια*. "*The Blood or Sanies of a dead Person is called by the Italians Mumia*."

But I have now another Notion of the Etymology of *Mumia*. *Mum* is a *Persian* Word, which signifies *Wax*. *Avicenna* distinguishes between the pure *Mum*, and the black *Mum*. His *Almum alaf*, is the pure bright *Mum*; and the *Almum alafnad*, is the black and dirty *Mum*; so he calls the *Propolis* of the *Greeks*. His old Expositor interprets it by the *Sordes* which stick to Bee-hives, or rather are the Foundation of the Work, and the Rudiments of Wax. What is almost Wax, is called *Propolis*, and by *Avicenna*, *Black Mum*. The *κόμμιωσις*, (*Commotis*) and *πισκόκερις*, "*Pistocerus*," is a ruder and more unfinished Work. This latter is a kind of diluted Wax, with which the Bees overlay their Structures. The *Commotis* is the first Foundation and Crust, which is spread before all other things. *Pliny's* Words are to be read thus, partly from the Copies; viz. *Commotis crusta est prima, saporis amari; Pistoceros super eam venit picantium modo, seu dilutior cera e vitium populorumque mitiore commi*. "*The first Crust is the Commotis, which is of a bitter Taste; over this comes the Pistoceros, like a Layer of Pitch, being a more diluted kind of Wax, which the Bees make of a milder Gum of Vines and Poplars*." *Κόμμιωσις*, (*Commotis*) is *ἀπὸ τῆς κόμμιως*, "*from Commis*." *Hesychius* interprets it *διὰ χρίσιν τῶν σμύνης*, "*the smearing of the Hive*." By *Aristotle* it is called *κόνις*, (*Konefis*) that is, *Pication*, (doing over with Pitch); for *κῶρι*, or *κῶν*, signifies liquid Pitch. *Dioscorides*: *Πίσσα ὑγρὰ, ἢ ἐν τοῖς κῶνι καλεῖται*, "*Liquid Pitch, which some call Conus*." Others name it *κῶν*, "*Cone*," by which Name it went among the *Greek Veterinarii*, or Horse-physicians; as in *Cap. 176.* *ἀσφάλην, κῶνις, ἀμμιωνία*, and *Cap. 843.* *ὁξὺς φυσσημάδιον, κῶνις πισσιόνις, ἀμμιόνις, ὁμοίως συμβαλὼν χρῆται*. "*Take Vinegar, of the Resin of the Pine-tree, and the liquid Pitch of the same, and apply them to Use*;" and in many other Places. Hence the *κῶνις οἶνον*, "*Wine stopped up with Pitch*," of *Hippocrates*, which *Galen* expounds by *πισσιόνις*. And hence also *κῶνισαι πῖθον*, "*to pitch a Hoghead*," and *ἀκῶνισον αγγεῖον*, "*a Vessel not pitched*."

To go on, what *Avicenna* calls *Black Mum*, is by other *Arabians* called *Car*, which some however interpret *Pissasphaltus*, and Bitumen, as *Alpagus* observed. But it is written otherwise when it signifies Bitumen, as thus, *Kar*; and for Wax, and *Propolis*, *Kaar*. With the same *Arabians*, *Keser* is Bitumen; but most think *Charabe* a Species of Bitumen, and to flow out of Springs in the same manner.

Now from this *Mum* aforesaid, I doubt not, but the Word *Mumia* is derived. For most Nations used Wax in embalming and medicating Bodies for Interment, especially the *Babylonians*, who in most things had the same Customs with the *Persians*. *Strabo*: *Θάπτουσι δ' ἐν μέλιτι, καὶ ὡς περιπλάσασθαι*. "*They bury their dead Bodies in Honey, having first cover'd them over with Wax*." The same was practis'd in *Greece*: We read at least, that the like Treatment was once used to the dead Body of a *Greek* Man. *Cornelius Nepos*, of King *Agesslaus*: *Ibi eum Amici, quo Spartam facilius perferre possent, cera circumfuderunt, atque ita domum retulerunt*. "*There his Friends, that they might the more conveniently transport his Body to Sparta, cover'd it all over with Wax, and so brought it home*." Moreover it was a customary thing with the *Arabians*, to use indifferently the Names of all Things which served for the same Uses, and to put one Name for another. Thus *Kitran*, which properly signifies the Pitch of a Cedar, is by some interpreted Bitumen. Thus again, they made no Distinction in their Notions between the *Fucus-marinus*, the *Scarlet-worm*, and *Madder*. After the same manner Bitumen, because it was used by various Nations, as well as the other, in seasoning their dead Bodies, had by them the Appellation of *Mumia* bestow'd on it, which is a Word derived from *Mum*, that is, Wax; so they took *Karabe*, which properly is *Succinum*, to signify also Bitumen. The *Karabe of Sodom*, in *Scrapius*, is Bitumen, or Funeral-gum, as he calls it, the *Almumiai*.

Some antient Authors affirm, that Amber works out of Springs, like Bitumen, the Truth of which is warranted by modern Discoveries, several Writers assuring us, that Amber is gotten out of the *German* Sea; and that it rises from Springs in the Sea itself, after the manner of Bitumen.

But

But of all the Opinions of Antiquity about Amber, the *Arabians* seem to approve of that alone, which, deriving its Authority from the Fable of *Phaeton*, makes it to be the Tears of the Black Poplar. The Truth of this they every-where assert in their Writings. 'Tis certain, that the Black Poplar weeps a kind of Gum. *Pliny* says, that the Bees make their *Piscoceros*, (pitchy Wax) which is a clearer sort of Wax, of the milder Gum of Vines and Poplars. *Dioscorides* calls this milder Gum of the Poplar *Αιγυρεα ρήσιν*, "the Resin of the Poplar." Most of the Antients believed, that the Tears of the Black Poplar falling into the *Po*, there concreted and made the Amber. *Dioscorides*, of the Black Poplars: *Ἰσχυρῆται δὲ τὸ ἐξ αὐτῶν δάκρυον κατὰ τὴν Ἰερὴν ποταμὸν κατὰ χεῖμα πύργυται, καὶ γίνεται τὸ καλέμενον ἡλεκτρον*. "It is reported, that their Tears running into the River *Po*, condense, and become what they call Amber." All the Gum of the Poplar does not turn to Amber, but only that which falls into the River, and there concretes in the Water, and acquires the Hardness of a Stone, by virtue of the Cold. Whether the *Arabians* believed, that Amber was so generated, or confounded all the Gum of the Poplar and Amber together, they never speak of Amber, which they call *Karabe*, than as the Tear of the Poplar. The *Arabians* call the Poplar *Haur*, and sometimes *Haur Rumi*, that is, the Roman Poplar. The *Latin Avifena*, *Cap. 349*, renders *Haurus*, the Tear of the Poplar: *De Hauris*, id est, *Populi Lacryma*. He takes the Name of the Tree for the Tear; as, on the other hand, *Cap. 375*, in his Translation, he makes *Karabe*, which is the Amber, or Tear of the Poplar, to be the Poplar itself: *De Karabe*, id est, *Populo*. So also the Translator of *Scrapius*: *Haur Rumi*, id est, *Karabe*. So *χαλβάκιον* (*Chalbani*) signifies as well the Gum, as the Shrub from whence it is produced; and the same may be observ'd in other Particulars.

From the Premises, I can hardly make a Doubt, but that this *Haurus* was, by the barbarous People, first chang'd to *Habrus*, and afterwards corrupted into *Hambus*, to signify Amber: So from the old Word *Abiga*, "Expeller," which was the Name by which the *Latins* call'd the Chamæpitys of the *Greeks*, because of its Efficacy in expelling the Fœtus, the same Barbarians coin'd their *Ajuga*; but later Ages, instead of *Abiga*, pronounced *Aviga*. An old Expolitor of the *Arabian* Nouns has it, *Aurum Romanum*, id est, *Archirosa*, *cujus Gummi dicitur Karaba*. Read, id est, *achiras*, or *acchiras*, from *αἰγυρεα* (*Aigirus*, a Poplar).

'Tis certain, that the Name *Ambri*, for *Succinum*, (Amber) is not of *Greek* nor *Arabic* Original. The *Arabians* call it *Karabe*, the ancient *Greeks* *ηλεκτρον*, "Electrum," the more modern *βερνίκιον*, "Berenice." From this *Berenice* the Barbarians hammer'd out their *Vernix*, which is their Term also for another kind of Gum; for so they call'd the Gum of Juniper, because it was so much like Amber. *Avifena*, *Cap. 273*, says, the *Karabe* was like *Sandarach*; so they called the *Vernix*. Some even made *Karabe* the same with *Sandarach*, as *Scrapius* assures us, *Cap. 366*. *De Karabe*. Hence the Barbarians, as I said, call'd the *Sandarach Vernix*, which was the Name the later *Greeks* used for *Electrum*. *Nesphytus*: *Βερύλιος λίθος*, ὅτις ἐστὶ τὸ δένδρον, ἐξ ὧν τὸ λεγόμενον βερνίκιον. "The Beryl Stone is the Juice of a Tree, or what they call 'Berenice.'" The same Author, on the Word *ηλεκτρον*: Ἄλλοι δὲ εἰσὶν ὅτι τῶν αἰγυρεῶν ἐστὶ καλλωδές. "Others say it is the Glue of the Poplar."

Perhaps, besides the Similitude of the Gums, the near Affinity of the Names in *Arabic*, was a Cause of their being confounded. For the Poplar is called *Raur*, whose Gum is the *ηλεκτρον*, or *βερνίκιον*; and the Juniper is called *Harar*, and its Gum *Sandarac*. And yet, which is strange, in the *Arabic Avifena*, we always read *Gianzi*, and not *Haur*, for a Poplar. *Gianzi* indeed with him signifies simply a Walnut-tree; but he always puts *Gianz Arumi*, that is, the Roman Nut-tree, for the Poplar.

The Gum, commonly called *Vernix*, is written in *Arabic* *Sandarac*, in *Avifena* with the Letter *Sin*. And in the Chapter of *Karabe* it is called *Alfandarac*, which is also pronounced *Sandarac*; for *Elif* and *Im* are often chang'd one for another in *Arabic* and *Hebrew*, for which Reason the Translators always render it *Sandarac*. The *Karabe*, that is, Amber, and this *Sandarac*, are so much alike, that they often exchange Names. *Avifena*, in the Chapter of *Caucamum*, writes the same things upon *Sandarac*, which he afterwards repeats almost *verbatim* of the *Karabe*, in his Account of *Lacca*. This, as I said before, is what the Barbarians called *Vernix*, by a Corruption from *Berenice*, which with the later *Greeks* signifies *Electrum*.

But the *Sandarach*, which is the Gum of a Tree, agrees in nothing but Name with the metalline *Sandarach*, which the *Arabians* call *Zarnig*; nor are we to suppose, that the *Arabians* made that Name, which with them signifies the Gum of a Tree, out of the Name of the metalline *Sandarach*.

The Antients had another *Sandarach*, which was the Food of Bees, and gather'd by them from the Juice of Trees, after the manner of Gums; of which *Pliny* speaks, *Lib. 2. Cap. 7*.

which Passage is thus to be read: *Præter hæc convolvitur Erithace, quam alii Sandaracham, alii Cerinthum vocant. Hic erit Apium, dum operantur, Cibus, qui sæpe invenitur in Favorum Inanitatibus sepositus, et ipse amari Saporis: Gignitur autem Rore verno, et Arborum Succo, Gummi modo, Africi minor, Austri Flatu nigrior, Aquilonibus melior, et rubens, plurimus in Græcis nucibus. Menecrates Florem esse dicit, sed nemo præter eum.* "Besides these, they convey thither *Erithace*, which some call *Sandarach*, others *Cerinthus*. This is what the Bees feed on while they are at Work, being often found in the empty Spaces of the Combs, and is of a bitter Taste. It is generated of the Spring-due, and the Juice of Trees, after the manner of Gums; it is diminish'd by the South-west Wind, grows blacker with a South Wind, but is meliorated and redder'd by a North Wind, and is very plentiful on Almond-trees. *Menecrates* says it is a Flower, but he is the only Person who says so." This *Sandarach* is from Gum, and is a sort of Glue. *Varro*, we know, observes, that the Matter with which the Bees glew together the Extremities of their Combs, is called *Erithace*, and is a different thing from the *Propolis*, having the virtue of alluring the Bees. The *Greeks* expound it by *τροφή μελισσῶν*, "the Food of the Bees"; *σανδαράχην*, (*Sandarache*) is the same thing; and so is *κήρινθος*, (*Cerinthus*) which is as much as to say *Cerago* (a waxlike Substance). *Hesychius*: *Κήρινθος*, ἡ λεγόμενη ἐριθάκη ἐστὶ δὲ τροφή, ἣν παρατίθεισιν ἐαυτοῖς αἱ μέλισσαι. "Cerinthus, which is called *Erithace*, is the Food which the Bees lay aside for themselves." *Menecrates* rather fancies it to be a Flower, and is follow'd in his Opinion by *Virgil*, who describes *Cerinte* as a Flower or Herb grateful and attractive to the Bees:

Trita Melisphylla, et Cerinthæ ignobile Gramen.

"Bruised *Melisphyllon*, and the ignoble Herb *Cerinthæ*." And *Pliny* himself, who here censures *Menecrates* on this Account, elsewhere enumerates *Cerinthæ* among those Herbs and Flowers which are grateful to the Bees; and *Lib. 21. Cap. 12*, gives a Description of it. *Theophrastus* likewise, *Lib. 6. Cap. 7*, reckons *κήρινθον*, (*Cerinthum*) among the Herbs used in Garlands (*Herbas coronarias*). Nothing hinders from bestowing the same Appellation on an Herb, and on *Cerago*, which others call *ἐριθάκη*, (*Erithace*). This latter is a gluey sort of Gum, with which the Bees conglutinate the extreme Borders of their Combs. Of this speaks *Virgil*, as follows:

----- *tenuia Cera* *

*Spiramenta liant, Fucosque et Floribus Oras
Explent, collectumque hæc ipsa ad Munera Gluten,
Et Visco et Phrygia servant Pice lentius Ida.*

"They besmear the small Spiracles with Wax, and fill up the Space between the Extremities of their Combs with Fucus and Flowers; and keep in Store, collected for these very Purposes, a Glue more tenacious than Bird-lime, or the Pitch of *Phrygian Ida*." That this Passage must be understood of the *Erithace*, we are taught by *Varro*, *Lib. 3*, where he thus speaks of Bees: *Extra Ostium Alvei obturant omnia, qua venit inter Favos Spiritus, quam ἐριθάκην appellant Græci.* "Without the Door of the Hive they close up all where-ever the least Breath of Air can come between the Combs, with what the *Greeks* call *ἐριθάκη*." With this *Erithace* they smear over and stop up the *Spiramenta*, that is, the small Holes by which the Air can come between the Combs. *Philargyrus* understands this Place of the Poet, as concerning *Propolis*, and takes the Fucus to be a kind of Wax, which the Bees use instead of Glue, and is called *Propolis*. But of the *Propolis* our Poet in the same Place thus sings:

----- *Et lentum de cortice Gluten*

*Prima Favis ponunt Fundamenta, deinde tenaces
Suspendunt Ceras. -----*

"They lay the first Foundations of their Combs with the slimy Glue of a Bark, and afterwards erect their tenacious waxen Structure." *Servius*: *Græci πρόπολιν vocant, duriorum Cera, quæ vix potest Ferro frangi, quam colligunt de Gummi Arborum.* "The *Greeks* call it *Propolis*; it is harder than Wax, and can scarce be broken with a Hammer. The Bees gather it from the Gums of Trees." The *Sandarach*, or *Erithace*, is also a Glue, and comes from the Gum of Trees, and the red is the best. Thence, we may be sure, comes the *Sandarac* of the *Arabians*; for of *σανδαράχην*, (*Sandarache*) they made *Sandarac*, changing *a* into *n*, as they do in other Words. Thus of *κοιχάδην*, they made *Astuchados*; of the *Greek τύμπανον*, they coined *Tambur*, for *Tambar*; for they commonly change *n* into *r*, and *p* into *b*: Thus they pronounce *φιστάκ* (*Phistak*) for *φιστάκ*, (*Phistak*) from the *Greek πιστάκιον* (*Pistacion*).

Some will have this *Sandarac* of the Bees to be the *Vernix*, but they are wrong in their Etymology. The *Vernix* is the *βερνίκιον* (*Berenice*) of the *Greeks*, by which Name they called Amber,

Amber, (*Succinum*) or the Gum of the Poplar. *Pliny*, we know, says, that the Bees gathered Pissoceros from the Gum of Poplars, but the Erithace, or Sandarac, from the Gum of the Almond-tree. I suppose it is called Sandarac for no other Reason but its sandarachine Colour. *Pliny* says, it is blacken'd by a South Wind; and perhaps this is the black *Mum* of *Avifena*, by which Name he expressed the *Propolis* of *Dioscorides*. But they confound Things; nor is it so strange, that there is a Permutation of Names in this Case. *Karabe*, as I said, with the *Arabians*, signifies Amber, or the Gum of the Poplar; and they say it resembles the Sandarac, or Vernix, which is properly the Gum of the Juniper. The Sandarac of the Bees is from the Gum of the Almond-tree. In an old Expositor of *Arabic* Names, *Karabe* is noted to be the Gum of a Tree called the *Roman* Walnut-tree. The Author followed the Reading which you every-where meet with in *Avifena*, of *Giauz* for *Haur*. But *Avifena* distinguishes that Tree from the Walnut-tree by the Adjective *Rumi*; for he calls the Poplar, not the Walnut-tree, *Giauz Alrumi*; tho' if it be render'd literally Word for Word, it signifies the *Roman* Walnut-tree; which was the Name he used for the Poplar. Others call it *Haur*, and, with the Addition of a *Nun*, *Hauron*, which is the Poplar.

This *Haur* and *Hauron* the *Barbarians* corrupted into *Aurum* and *Abrum*, and from thence, in a little time, into *Ambrum*, to signify the Tear of the Poplar, or Ambler.

As for *Hambar*, or *Ambar*, as it is a different Name, so it signifies another thing. The *Greeks* of the latter Ages, as *Nicetas Choniates*, *Simeon Sethi*, and others; write *Ἀμπαρ* (*Ampar*). *Aetius* also mentions it, and calls it *ἀμπαρ* (*Ampar*) in the ancient Copies, not *ἀμπερα*, (*Ampira*) as it is in the Editions. We call both sorts *Ambra*, but that which is not the *Succinum* we commonly distinguish by an Adjective signifying the Colour.

I don't remember, that I have read *Ambra* to mean *Succinum* in later *Greek* Authors, nor do the *Arabians* call it by that Name. For which Reason I can't but suspect a Remark of *Fuchsius*, in *Myrepsus*, on the Composition of the seventy-fourth Plaister, concerning the Difference of the *Ambar* and *Ambra*, in these Words, "*Ambaris*, *Exag.* 2. *Moschi* "*Scrup.* 2. *Ambrae*, *Exag.* 3." I don't find this Composition in the original *Greek*, and *Fuchsius* seems to have fallen upon a bad Copy, or not to have fully comprehended the Meaning of the Writing, which he had the Misfortune not to do in almost an infinite Number of Places. *Leo Africanus* tells us, That the Whale is called *Hambara* by the Inhabitants of *Fez* and *Morocco*; which perhaps gave Rise to a received Opinion among most of the *Greeks* and *Arabians*, that *Ambar* was the Dung or Spawn of the Whale. Hence it is, that in the Medical Glosses of the later *Greeks*, we every-where find it thus interpreted, "*Ἀμπαρ* μυρικήν κόπρη ἰχθύος," "the odoriferous Amber is the Dung of a Fish;" and *ἐώκως ἀπόδευμα*, "the Excrement of a Whale." The same way of Reasoning induced Multitudes to believe, what many also wrote, that Frankincense grew on Mount *Libanus*, because the *Greeks* called Frankincense *λίβανος*, (*Libanos*) which is the Name of a Mountain in *Syria*; and some even at this Time would fain persuade us, that this Mountain is at this Day called *Lebnon*, from the *Syriac* Word *Lbunto*, which signifies Frankincense; whereas the *Syriac* *Lbunto* for Frankincense is plainly a Corruption of the *Greek* *λίβανος* (*Libanotos*). If Frankincense had been of the common Growth of *Syria*, the Antients had not differ'd so much about the Shape of that Tree, which was hardly known to them. 'Tis certain, that it grows no-where at this Day but in *Arabia*; and *India* does not produce it, though the Antients make mention of *Indian* Frankincense. *Συρίας* *λίβανος* *καπνός*, "the Smoke of *Syrian* Frankincense," is mention'd in the *Bacchæ* of *Euripides*, but after the same manner as *Malabathrum Syrium*, *Myrrha Syria*, and other things, which we are well assured, were never of the Growth of *Syria*.

Antient and modern Authors are not agreed about the kinds of *Ambar*, nor about its Colours, Differences, and Marks of Goodness. The *Portuguese* Writers make three Species; the *Porabar*, which is the white; the *Puabar*, which is white mix'd with black, or, the brown; and the *Minabar*, or Black, which, they say, is devour'd by the Whale: The first kind is the best, the second next, and the third worst of all. *Simeon Sethi* describes the best Sort as red and fat, the next in Goodness is the brown, and the worst Characteristic is that of the black, which is gather'd of the Whales that have been sucking at the Springs of *Ambar*. *Και το μὲν κρεῖττον*, says he, *ἐστὶ καὶ κίρρον καὶ λιπώδες ἀναδίδεται δὲ ἐν τινὶ πύλιν Σιλαχίτ ὀνομαζομένην τὸ δὲ ὑπόλευκον ἐν τινὶ παραλίῳ πολυχνίῳ τῆς εὐδαίμονος Ἀραβίας Σίχνη ὀνομαζομένην τὸ δὲ ὑποδύσερον καὶ μέλαν συνάγειται ἐξ ἰχθύων ἀπογευσσάμενων τῶν αὐτῶν ἀμπαρ πηγῶν.* "The best is the red and the fat, which is exported from a City called *Silachet*; the whitish comes from a little maritime City of *Arabia Felix*, called *Sichne*; and the poorest sort, which is the black, is gathered from Fishes which

"have been tasting of the Springs of *Ambar*." The best, he says, is brought from *Silachet*, a City of *India*, where it rises out of Springs. *Avifena* also calls the highest-prized *Ambar* *Alfelebeti*, that is, which comes from the City, or Country; *Selebet*, which is the very same that the *Nubian* Geographer places in the ninth Parallel of the first Climate, calls *Selebet*, and makes an Island of *India*. This is *Simeon's* *Σιλαχίτ* or *Σιλαχίτ*, (*Silachet* or *Selachet*) for the *Greeks* commonly express the *Arabic* He by X (Ch); as *Ταμαρχήτι* (*Tamarchenti*) in the *Græco-Arabic* Lexicons stand every-where for *tamar Hendi*. What bears a lower Rate, but next to the best, *Simeon* tells us, springs up in a City of *Arabia Felix*, called *Σίχνη* (*Sichne*). In other Copies I find it written *Σύχνη λεγομένη*, "called *Suchra*"; and some cite it, *ἐν Σενχρί Felicis Arabiæ*, "from *Senchri* in *Arabia Felix*." I know not whether it be the Place which *Serapion* calls *Zing*; only he places it in the West, far enough from *Arabia Felix*, viz. in *Terris Zing in Occidente*, "in the Territories of *Zing* in the West." He must not however be understood to mean *Africa* or *Barbary*, but a maritime Tract of *Ethiopia*, where *Mosambique* lies, which abounds with *Amlar*, and is situate West of *India*; now the *Arabians* call the *Ethiopians* *Zing*; *Simeon* calls the maritime City of *Arabia Felix* *Σίχνη* (*Sichne*); the *Zengi* in *Alpagus* are the western *Ethiopians*. But *Serapion* differs from others in his Characteristics of the best *Ambar*, which, he says, is of a Sky-colour, and makes the white to be the cheapest and worst of all, tho' others prefer it to the rest. But, in Truth, there is no *Ambar* of a sky-blue or azure Colour; and it seems a Fault of the Translator. The *Arabic* is *azarac*, which they render sea-green, (*glaucus*) grey, (*caesus*) and azure, (*cæruleus*) of the Colour of the Pinnament. According to *Alpagus* *Zarac* is the Colour of the Heavens; however it can have nothing to do here, when we talk about the Colours of *Ambar*: They also take notice, that it signifies changeable and pale. Hence comes *zaracha*, *paleness*; and this is the true Signification of the Word in this Place. *Simeon* terms it *ὑπόλευκον* (*hypoleucon*); we commonly call it a grey or grizel. *Avifena* calls it *Alazarac*, which his Translator rightly renders of *Ash-colour*. *Avifena* gives the Preference to *Selebetican* *Ambar*, which has its Name from an Island of *India*, which *Garcias* wrongly supposes to be *Zeilan*. The second Place in point of Goodness, he says, belongs to the *Ambat alzarac*, that is, the *Ash-colour'd*. As to the *Selebetican*, which is most esteemed, he does not tell us of what Colour it was, at least in the *Latin* Edition. And it is observed by *Alpagus*, in his Exposition of *Arabic* Names, that the *Arabian* Interpreters are ignorant of the kind of the *Ambar* *Alfelebeti*, as well as its Colour; at which I can't but wonder. If there were no more in the *Arabic* Copy, than in the *Latin* Version of it, yet it might easily be guess'd, from what others have related, that the *Selebetican* *Ambar*, to which *Avifena* assigns the Preference, was white, since most set the highest Value upon *Ambar* of that Colour, tho' *Avifena* does not mention it. We might also conjecture, that it was red, as well as *Simeon*, who makes the *κόκκινον*, "red," the most valuable. Nor is *Avifena* against it; for he only assigns the third Place to the Citron-colour'd, which in *Arabic* he calls *Alasafar*, that is, *χαλκόχρουν*, Copper-colour'd. The Citrine is a very watery Colour, but the *κίρρον* (*cirrus*) is ruddy or red. *Avifena*, among the Characteristics of the best and choicest *Ambar*, does not only name *Selebetican*, which was all that his Translator observ'd, but prefix'd two other Words expressing the Properties it ought to have, viz. *alafseibeb*, and *alkawi*, to which he adds as a third *Alfelebeti*. This last Epithet is taken from the Country, the two former signifying other Qualities which belong to it. *Alkawi* imports firm and robust, which I understand of that *Ambar* which is least friable, and most resists a Separation; such is that which is endu'd with a fat sort of Viscidity. This is the *λιπώδες* (*lipodes*) of *Simeon*, which he sets down as a Mark of the most valuable *Ambar*. *Garcias* commends that for the best, which, pierced with a Needle, sheds out a good deal of an oily Liquor; this is the *λιπώδες*, "fat;" what is easily broken cannot be such. I take *alafseibeb* for ruddy, according to the same *Simeon*, who calls it *κίρρον* (*cirrus*). The Word is derived from *Sgibeb*, which signifies a Flame or Lamp, and in the *Alegran* is put for a Star. It might also be taken for white, as it expresses the *τὸ λαμπρόν*, "lucid," which the *Greeks* also put for white. But *Simeon* has handsomely expressed *Avifena's* two Epithets of the best *Ambar* by those other two, *κίρρον καὶ λιπώδες*, "ruddy and fat." If he took them from the *Arabians*, 'tis plain that he understood *alafseibeb* to signify ruddy, "ruddy." Among modern Writers, *Mamardus* informs us, that in chusing the best *Ambar*, we are to take such as borders a little upon the red, and that the white is not so good. But I suppose he had this from *Simeon*, whose *ὑπόλευκον*, whitish or grey, *λευκόν*, (*leucophaeon*) he did not rightly express by *album*, "white." This is the *azarac* of the *Arabians*, which properly signifies party-colour'd, or sprinkled with black and white, and is from the *Hebrew* *זרוע*, *Zarua*, "to sprinkle." So the *τὸ ποικίλον*,

(various) is by the Greeks called *ῥανθόν, ἀπὸ τοῦ ῥαίνειν* (sprinkled, from the Verb signifying to sprinkle). The Latins say *sparsum*, (sprinkled) whence *Sparso ore* in the Comic Poet. And in the Glosses: *Aspersus*, ἄσπερος ἰχθύος καλῶσιν (the *Aspersus* is a kind of a spotted Fish); and *sparsa Tempora*, *sparsum Caput*, “sprinkled Temples, sprinkled Head,” denote τὸν μελοπόλιον (a Man whose Head is sprinkled with grey Hairs); in which Sense also we read the Verb *zarac* in *Hosea*: “They are mistaken then, who render it azure or green.

Serapion taken Notice of but two Kinds of Ambar, viz. that which his Translator calls sky-colour, (*cælinus*) and the white, of which the first was the best. Perhaps the Word in Arabic for Sky-colour was *alaxibeb*, as it is in *Avifena*, and the old Translator rendered it *stellinum*, from the Colour of the Stars, or *cælinum*, as we have it. As for the white, I doubt not but it was the same with what *Simeon* calls *Hypoleucum*, (ὕπλευκον) and *Avifena azarac*, that is, an ashy white; for *Garcias* is mistaken, when he writes, that the whitest Ambar is condemned by *Serapion*, who says simply *white*, not *whitish*, or inclining to white.

But we are, in a manner, forced to render the Arabic Word *alaxibeb* white, by the later Accounts of three different Species of Ambar, under as many different Names, viz. *Perambar*, *Puambar*, and *Penambar*. The first of these is the white, and the best of all; the second is the ash-coloured, which is next in Goodness and Price; and the third Sort is the black, which is the cheapest, and worst of the three.

We meet with *candida Sidera*, and *candida Flamma*, “white Stars, and white Flames,” whenever we read the Poets; and this is literally true. But *candens*, “shining,” for *candidus*, “white,” is also usual, and from thence *Candela*, ἡ λαμπράς, (a Candle) takes its Name. So also, in the Greek, λαμπρὸν (*lucid*, or *shining*) is used for *candidum* “white,” as λαμπρὰ εἶδος, (a shining white Garment) and λαμπρεῖμονες (*Candidates*). The Arabic Word signifies a Star, or Lamp, from whence comes the Term for a white Colour. They who understood it, as *Simeon* did, of a ruddy, (*rutilus*) presented us with an Ambar dressed up in Red, of which there is none extant at this Day, from a Misunderstanding of the Word.

Præfulvus takes the yellow Amber, out of which Handles for Knives are made, for *Succinum*. Another learned Physician, in his Definitions, under the Word ἤλεκτρον, (*Electrum*) cites *Serapion*, where he treats of Ambar, as tho’ there were no Difference between this Ambar and the *Electrum*, which they call the Ambra of the Shops. *Scaliger* also, in his Notes upon *Garcias*, does not scruple to call *Ambarum* by the Name of *Succinum*.

They are all of them most grossly mistaken: The two Ambras are both of a different Nature, and derive their Names from a different Original. In one thing they agree, viz. in that they are said to rise out of Springs after the manner of Bitumen. The *Succinum* also is of a fragrant Smell, and the white Sort extremely fragrant, according to *Pliny*; for there is the white, the yellow, and the waxen: Yet, for all this, the *Ambarum* is a quite different thing from the *Ambra*, which is called *Succinum*. Nor must we imagine, that *Avifena* and *Simeon Sethi*, when they mention the yellow or citron-coloured *Ambarum*, confound it with the common *Ambra*.

We have already shewn, that the Name *Ambarum*, to signify *Succinum* or *Electrum*, is not extant in any Greek or Arabian Author of considerable Antiquity. Moreover, all the Moderns, who have given us Relations of Voyages to the new World, mention only three Sorts, and as many different Colours of *Ambarum*, or *Ambar*, which are, the white, the ash-colour’d, and the black; of these the white is the most valued, and the black the least esteemed. *Simeon Sethi*, instead of the white Ambar, makes the *κίττος*, (*ruddy*, or *gold-coloured*) to be the most precious; as to the rest, he agrees with the others; for his second Sort is the ὑπλευκον, (*whitish*) and his third and last Sort is the μέλαν (*black*). *Ferdinand Lopez*, as well as the rest, reckons three Sorts of Ambar, but differs a little in their Names, of which he gives an Explication. They are the *Ponabambar*, the *Coambar*, and the *Maniambur*; the *Ponabambar* is the white, which is in highest Esteem; the Word signifies *Golden Ambar*, and this Sort bears a greater Price than the others, being very scarce, and gathered with much Difficulty: This is plainly the *Κίττον ἄμπαρ* (the *red Ambar*) of *Simeon*, and is called *Golden*, I suppose, not from the Colour, but the Price, as *Lopez* clearly hints, and as it is expressed in the Language of the Natives by *Ponambar*; and perhaps this deceived *Simeon*, who might understand *Golden* to mean the Colour: Some call it *Porambar*, and interpret it of white Ambar: So, again, what others call *Puambar*, is by *Lopez* called *Coambar*, which he interprets *Water-Ambar*; because, by its long and violent Agitation on the Waters, it has lost much of its Virtue; this is of an Ash-colour. The third is the *Maniambur*, which signifies *Fish-Ambar*; for it is devoured by Whales, and after some time brought up again by them, unconcocted, whence its Blackness is contracted: And this agrees also with *Simeon’s* Opinion, who

says, that the Fishes which drink of the Fountains of Ambar, cast it up again coloured black.

There is mention made of κάκαμπαρ (*Cacampar*) in *Myrepsus’s* Plaisters, *Compos.* 3. ξυλαλός, κάκαμπαρ, ξυλοβαλσαμν, ξυλοκασίας, &c. — of *Lignum Aloes*, *Cacampar*, *Xylobalsamum*, *Cassia Ligneæ*, &c. What Reason *Fuchsius* had to translate *Cacampar*, *Betony*, I cannot so much as guess; but how is it likely, that the Author would put *Betony* among exotic Aromatics? But I have observed of *Fuchsius*, that he every-where takes the Liberty of changing what he does not understand; which is a Practice scarce tolerable in a Man of Letters, but most unpardonable in a Physician, on account of the Mischiefs which usually result thence to the infirm Part of Mankind. I am apt to suspect, that we are to understand by it some kind of Ambar; and perhaps it is what *Lopez* tells us the Natives called *Coambar*. The Greeks seem to have pronounced κάκαμπαρ, (*Cacampar*) instead of κάκαμπαρ, (*Coambar*) or κάκαμπαρ (*Coambar*). We must, however, acknowledge, that κακάμπαρις (*Cacamparis*) is a Word that often occurs in *Myrepsus*, with an Interpretation that will hardly agree with any Species of Ambar: For in his Antidote δια κνδανίων, (of *Quinices*) Cap. 37. he explains it by δροσιβοτάνον, (*Drosibotanon*) κάκαμπαρ ἢ οἱ δροσιβοτάνον (*Cacampar* or *Drosibotanon*); and Cap. 79. in his Antidote against the Dysentery and Colic, γαρροφύλλον, κάκαμπαρ ἢ οἱ δροσιβοτάνον (*Cariophylli*, &c.) In the Antidote of *Castor*, which is the twentieth in *Fuchsius’s* Edition, and the same with the above quoted, Cap. 27. we read, in *Fuchsius’s* own Version, *Lauriola Campi*, id est, *Betonica* (of *Laureola* of the Field, that is, *Betony*): He had as good have said nothing. The Greek reads, λαυρίωλε, ἢ οἱ κάκαμπαρ, ἢ οἱ δροσιβοτάνον (*Laureola*, or *Cacampar*, or *Drosibotanon*). The Word *Laureola* wants to be explained in the Greek: Some take it for the Mezereon of the Arabians, which is something very different from *Betony*: *Drosibotanon* is, properly, the Herb of Dew; for Dew, in vulgar Greek, is called δροσία (*Drofia*). I find, indeed, *Betony* so called and explained in medicinal Lexicons; and a very ancient Copy of *Dioscorides* informs us, that it was called, by the Romans, *ρυσμαρίνα* (*Rosemary*): The ancient Greeks called it ψυχρότροφος (*Psychrotrophos*, nourished with Cold); because it loves to grow in cold Places: Later Ages called it δροσιβοτάνον, from Dew, whence came the Latin Name *Rosmarinus*. But why the same later Greeks gave it also the Name of *Cacampar*, I know not; and it seems to be an Arabic Word. However, it does not appear worthy of a Place among the Aromatics and Exotics in Plaister the third; and it stands there without any Exposition, which *Myrepsus* never omits; for where-ever you read κάκαμπαρ (*Cacampar*) in him, you meet with its Explication adjoined, with an ἢ οἱ δροσιβοτάνον (that is, *Drosibotanon*).

There is, in the same Author, another Word, which is κικέμπαρ, or κικέμπαρις (*Cicampar*, or *Cicamparis*); which is always mentioned among the Aromatics, as in the first Antidote of *Castor*: Στόμαχος καλαμίτη, κικέμπαρ, κινάμων (of *Styrax Calamita*, *Cicampar*, and *Cinamon*); and so, also, in his Antidotus plenius Archenticus, κινάμων, γαρροφύλλον, ξυλαλός, κικέμπαρις (*Cinamon*, *Cariophyllum*, *Xylaloes*, *Cicampar*). The same Author often uses ἄμπαρ for Ambar. The Question now is, What is meant by this *Cicampar*?

As for *Fuchsius*, he always passed over what he did not understand, with great Assurance: But, concerning the Original of Ampar, *Simeon* speaks thus, Τὸ ἄμπαρ ἐν διαφόροις βλύζει τόποις, καθάπερ πυγαὶ ἐλαίου τε καὶ ἀσφάλιν (Ampar gushes out in several Places, like Springs of Oil, (ἐλαίου) or Asphaltus). The Passage is commonly cited, πυγελβίς καὶ ἀσφάλιν. Hence a learned Author took Occasion to augment his Lexicon with the Addition of the Græco-barbarous Term Πυγέλβιον, (*Pegelbium*) of which he gives no Explication, and ’tis no Wonder he did not. In some Copies I found it written καθάπερ πίττης, ἐλαίου τε καὶ ἀσφάλιν (like Pitch, Oil, &c.). The Greeks often called liquid Bitumen by the Name of Oil; yet I don’t doubt but the Place might be better read πετρίλαια τε καὶ ἀσφάλιν (*Petroleum* and *Asphaltus*). The later Greeks called *Naphtha* by the Name of *Petroleum*, of which there are Springs as of the *Asphaltus*, which is a Sort of liquid Bitumen.

The Nubian Geographer is of the same Opinion concerning Ambar, who says, that under the seventh Parallel of the first Climate there lies a native Vein of Ambar, which bubbles up from Springs in the Bottom of the Sea, as the *Naphtha* does in the Country of *Babylon*; and that they sometimes find Fragments of it a hundred Pound Weight, which is the Import of the Arabic Word ΚΙΝΤΙΑΡ, from the Latin *Centarius* for *Centenarius*. *Garcias* relates, that they once found a Fragment that weighed three thousand Pounds.

The aforesaid Geographer calls the Fountains, whence the *Naphtha* works out, *Hiti*, and says it is a Place in the Territory of *Babylon*. Here, by the way, we may take Notice of a Mistake of *Avifena*, in translating *Dioscorides*: The Greek Author defines *Naphtha*, βαβυλωνίῳ ἀσφάλιν περιέθρημα, τῷ χρώματι λεόνιν (a Percolation of Babylonian Asphaltus, of a white Colour).

He adds, that they find also a black Sort: Here *Avifena* makes strange Interpolations, for want of taking the true Sense of his Author. "The white Naphtha, he says, is a Species commonly known, but the black is the *Babylonian*, or some other Sort of Pitch, passed through a Strainer." But the Meaning of the Greek Author is, that the Naphtha is a *Babylonian* liquid Bitumen, melted down in a manner, and strained through the secret Canals of the Earth, and flowing out of Fountains, Wells, or Caverns. *Avifena* himself expressed the same thing, when he said, that the black Naphtha was *Safua albor albabeli vageirobe*; which the Translator rightly rendered, a Percolation of Babylonian, and other Sorts of Pitch. But this cannot be the Meaning of *Dioscorides*, who, by περιέθημα εσφαλμένον, simply intended liquid Bitumen; as Things which are squeezed and passed through a Strainer, become the more liquid; for nothing goes through but the most liquid Part, the thick and feculent remaining behind. This the Greek Author affirm'd as well of the black as the white. Besides, it is to be observed, that *Dioscorides* did not say διαθήμα, (*DiatHEMA*) but περιέθημα (*Periethema*). Things which are limply transmitted through, are said διαθήμα (*DiatHEsthai*); but περιέθημα (*Periethesthai*) is another Thing: That whole Country was bituminous; he would therefore indicate, that this Bitumen was dispersed all around that Territory, in a loose and indeterminate manner, and strained through the Veins of the Earth; and in some certain Places was liquefied, and did bubble and work out; and this was the Naphtha. Thus we are to suppose, as I may say, a *Periethema*, (a straining all around) or Vent-holes all over the Country for this *Babylonian* Bitumen.

But *Avifena* thought, that the white Naphtha proceeded from a natural Vein, but the black was the *Babylonian*, or some other kind of Pitch, defecated by passing through a Strainer: Whereas *Dioscorides* spoke this peculiarly of the white Kind, that it was a *Periethema* of the Asphaltus, and particularly of the *Babylonian*. The Greeks called this Sort of Bitumen ελαιον Μιδείας (*Oil of Medea*). *Socion*, on Fountains, says, Τὸ δὲ καὶ τὴν Σουσιανὴν ὕδωρ φασὶν εἶναι Μιδείας, καὶ πεφαρμάχθαι καυστικοῖς φαρμάκοις, ὃ ῥα μὲν ἐκ πηγῆς τινος (They say, that about Susiana is the Water of Medea, which is medicated with caustic and inflammable Drugs; it flows out of a Spring). He says it is called ἀφθα (*Aphtha*); and so it is read in the Epitome of *Strabo*, comprised in *Constantine de Imperio*, viz. πηγὰς ἀφθας (*Springs of Aphtha*).

Most of the Antients were of Opinion, that there are Springs in the Bottom of the Sea, like those of Naphtha, which throw up Ambar; and this, as it is the most common, is also the most probable Opinion, and best accounts for those Fragments of the Shells of Oysters, and other testaceous Fish, which are so often found inclosed in it, having stuck to it before its Humour was condensed, just after the same manner that you see Ants, and other Reptiles, in Succinum, which were caught and detained by the tenacious Humour before it was congealed; for this also is found to rise out of Springs, as well as the Naphtha, Bitumen, and Ambar. And so much for the Difference between *Ambar* and *Ambra*, which does not consist in Names, (for we call them both *Ambra*) but in the Things themselves, which both differ in their Natures, and derive their common Name from different Originals. *Salmasius de Homonymis Hyles Iatricæ*, Cap. 101.

Of AMBERGRIFE. ---- *Ambra Grisea*.

We see, by the preceding Dissertation, that, with respect to Ambergrife, as it has also happened in most other things, the Antients have made few Mistakes, but what have been adopted by the Moderns, and broached with an Air of discovering something new, with very little Variation. Thus Ambergrife is, in an Account from *Batavia*, printed in the *Philosophical Transactions*, said to be the Product of a certain unknown Tree, from whose Roots it flows into the Sea. In another Dissertation it is said to be the Combs of a Sea Insect, somewhat like a Bee. Nor is the Supposition of its being produced by a Whale so modern as the Author of the following Memoir seems to imagine.

It is now found out, that this Ambergrife is an Animal Production, and bred in the Body of the *Sperma-Ceti* Whale, analogous to what is found in some Animals of the Land, as the Musk-hog, or *Taiacu*, the Musk-deer, the Bezoar-sheep, and some amphibious Animals, as the Musquash, &c. who have their valuable Scent in a particular *Cystis*, or Bag. I am apt to think, that which first gave Occasion to the Notion of *Ambergrife* being the Production of the Whale, was, because it was found in considerable Quantities on the Shores of the *Summer-Islands*, and among the *Bahama's*, where the dead Whales are frequently wrecked and broke up with the Sea, and the Ambergrife found floating, or on the Shore; but here again, the Ingenious, until very lately, were at a Loss, and divided in Opinion; for though they agreed it to come from the Whale, yet some took it to be the true and proper Semen, being found only in the Bull, at the Root of the *Penis*, near the Testicles; others again thought it was the Ordure or Excrement of the Whale.

The best and most exact Account of Ambergrife, that I have been able to procure, I very lately received from one Mr. *Atkins*, now an Inhabitant of *Boston* in *New England*, who used the Whale Fishery for ten or twelve Years together, and was one of the first that went out a-fishing for the *Sperma-Ceti* Whales, about the Year 1670, and then began to discover the Ambergrife; and being a sober ingenious Man, what he says may safely be depended on; though, for Substance, I have had it from several of the Whale-men.

His Relation, which was taken a few Days since from his own Mouth, is as follows:

The Ambergrife is found only in the *Sperma-Ceti* Whales; and consists of Balls, or globular Bodies, of various Sizes, from about three Inches to twelve Inches Diameter, and will weigh from a Pound and an half to twenty-two Pounds, lying loose in a large oval Bag, or Bladder, of three or four Foot long, and two or three Foot deep and wide, almost in the Form of an Ox's Bladder, only the Ends more acute, or like a Blacksmith's long Bellows, with a Spout running tapering into and through the Length of the *Penis*, and a Duct, or Canal, opening into the other End of the Bag, and coming from towards the Kidneys; this Bag lies just over the Testicles, which are above a Foot long; and is placed lengthways at the Root of the *Penis*, above four or five Foot below the Navel, and three or four Foot above the *Anus*. This Bag, or Bladder, is almost full of a deep orange-coloured Liquor, not quite so thick as Oil, and smelling strong, or rather stronger of the same Scent with the Balls of Ambergrife, which float and swim loose in it; the Inside of the Bag is very deeply tinged with the same Colour as the Liquor, which may also be found in the Canal of the *Penis*; the Balls seem to be pretty hard while the Whale is alive, inasmuch as there are many times found, upon opening the Bag, large concave Shells, of the same Substance and Consistence, that have scaled off from them, and the Balls themselves seem to be composed of several distinct Coats, inclosing one another, something like the Coats of an Onion.

As to the Number of Balls, Mr. *Atkins* never found above four in a Bag, and in the Bag, where he found one that weigh'd twenty-one Pounds, which was the largest he ever saw, there was no other.

He further says, that to one *Sperma-Ceti* Whale that has any of these Balls, there are two that have nothing but the deep orange-coloured Liquor, aforesaid, in their Bags. This Remark confirms what another Whale-man told me, That the Ambergrife was found only in such *Sperma-Ceti* Whales as are old and well-grown. It is the general Opinion of the Whale-men, that the Ambergrife is produced only by the Male, or the Bull *Sperma-Ceti* Whale. As to this Particular, Mr. *Atkins* says, he never saw, nor certainly heard of, a *Sperma-Ceti* Female taken in his Life, the Cows of that Species of Whales being much more timorous than the Males, and almost impossible to be come at, unless when haply found asleep on the Water, or detained by their Calves. This is certain, the Boats can never come near them, when they are awake, they are so very shy and fearful.

Mr. *Atkins's* Method of getting the Ambergrife out of the Whale, was thus; after the Fish is killed, he turns the Belly upwards, and fixes a Tackle to the *Penis*, then cuts a Hole round the Root of the *Penis*, thro' the Rim of the Belly, till he comes to the Entrails, and then searching for the Duct or Canal at the further End of the Bag, he ties it pretty near to the Bag, and cuts the Duct off beyond it; upon which he draws forth the *Penis* by the Tackle, and the Ambergrife Bag entirely follows it, and comes clean and whole out of the Belly.

The Rev. Mr. *Prince* of *Boston*, who took the preceding Relation from Mr. *Atkins*, apprehends the Bag aforesaid to be the urinary Bladder, and the Ambergrife Ball to be a certain Concretion, formed out of the greasy odoriferous Substance of the Liquor aforesaid contained within it. As for my own Part, I dare not pretend to give any Opinion upon the Point, but content myself with relating Matter of Fact. *Phil. Trans.*

This Account embroils the Origin of Ambergrife very much; for it makes it nearly certain, that Ambergrife, or something very like it, is an Animal Substance; and yet, by the best Inquiries that have been made, it appears, that Ambergrife must belong to the Mineral Kingdom, which the following Observations from *Hoffman* put beyond Dispute.

The Origin of *Ambergrife* is a Point that has been long debated amongst Physicians and Naturalists, some maintaining it to be the Product of the Animal, others of the Vegetable Creation.

Some assert that it is the Dung of some Oriental Bird; and as a demonstrative Proof of their Opinion, shew the Claws and Fragments of the Beaks of Birds, that are often found inclosed within its Substance, which, being committed to the Fire, emit the Odour of an empyreumatic volatile Salt, which Sort of Smell is almost peculiar to Bodies that derive their Origin from the Animal Kingdom.

Others, on the contrary, attempt to prove, that *Ambergrife* is a kind of Honey, which is made by the Bees in the Rocks by the

the Sea-side; and being afterwards attenuated and digested by the Heat of the Sun, becomes a Substance of that Fragrance as we find it.

But these Errors may be soon detected by plain chymical Experiments; for all Dung of Animals, and Honey too, admit of a Solution in aqueous Menstruums; but obstinately resist the most highly rectified Spirit of Wine.

Some of the Moderns have thought it to be a peculiar kind of Resin, or Tear, distilled from some Tree, as yet unknown to us, in the Eastern Parts of the World, and afterwards transferr'd to the Sea, where, acquiring a more perfect Digestion by the Heat of the Sun, and by the Sea Salt, it constitutes a resinous Body of that Nature.

But, besides many other Reasons, what directly thwarts and overthrows this Opinion, is, that all resinous Bodies of Vegetables will admit of an easy Solution and Extraction, in the highly rectified phlogistic Spirit of Wine; whereas the contrary is true of Ambergrise, which is very difficult to be dissolved in such a Spirit. Besides, it is observed, that inflammable Bodies, produced from the Earth, as Amber, Bitumen Judaicum, and Sea Coal, are also difficult of Solution, and are by no means readily united with a very spirituous Liquor.

These things considered, we agree in Opinion with those who hold, that *Ambergrise* is to be reckoned among the Species of Bitumens, and owes its Rise to the Earth, out of whose Bowels it is torn, and washed away by the Violence of the Waves, and carried into the Sea; for it is found in greatest Quantities in the Sea about the Island of *Madagascar*, where the subterranean Parts are believed to be pregnant with that kind of Bitumen.

Since it is so difficult, as we have observed, to make a Solution of Ambergrise, for this Reason we have never yet met with any genuine Solution of it in the Shops; for it is generally prepared with Musk, or Oil of Cinnamon, or Oil of Roses, or even with Civet; by which means we are, indeed, furnished with an Essence of a very grateful Smell, which also has its Virtues and Use; yet participates but little of the Ambergrise, which remains in a manner untouched: For these Reasons we think ourselves obliged to lay down some Characters of the genuine Essence of Ambergrise, as follows:

First, It ought to be prepared only of Ambergrise, and not mixed with the Solution of any other thing.

Secondly, It must undergo an almost entire Solution by the Menstruum.

Thirdly, If this Essence be dropped into an aqueous Liquor, it will, of necessity, turn milky, after the manner of all Oils and Resins that have been dissolved.

Now it is prepared in the following manner: Let the Spirit of Roses, perfectly dephlegmated, be, not only once, but twice at least, drawn off from Salt of Tartar, which is burnt and calcined in a vehement Fire. By this means there is produced a Spirit, which, by its penetrating Quality, enters into the inmost Substance of the Ambergrise, and so separates and resolves its oleous Contexture.

This Solution, or Essence, of Ambergrise, is deservedly placed at the Head of Strengthening Remedies, and such as corroborate the debilitated System of the Nerves; and, of consequence, has the Preference of all such Medicines as are appropriated to Distempers which proceed from a Decay of Strength in the nervous Parts. For it does not so fill the Head with Vapours, or excite Comotions and Agitations in a weak Body, as does the common Preparation of Ambergrise, which is made with a Mixture of Musk or Civet, whose Fragrance is found, by Experience, to be of such a Nature as to incommode weak Persons of both Sexes, who are subject to spasmodic Affections. *Hoffman. Observat. Physico-Chym. Lib. 1. Cap. 18.*

This has the Appearance of being, by much, the best Preparation of Ambergrise I have met with, and is very likely to be possessed of the Virtues which the illustrious Author attributes to it.

It is observable, that as Ambergrise and Amber have much the same Original, and are both remarkable for their friendly Influences upon the Nerves, it is possible they may be nearly allied to each other.

Ambergrise is thus distinguished:

AMBRA-GRISEA, Offic. Mer. Pin. 219. Park. Theat. 1566. Sibb. Phalain. 42. *Ambra*, Aldrov. Mus. Metal. 430. Worm. Mus. 33. *Succinum griseum*, *Ambra-grisea vulgo*, Charl. Foss. 15. *Ambra-grisea, seu ex albo grisea*, Dougl. Ind. 6. *Ambra-grisea*, Mont. Exot. 12. *Ambra cinerea*, Ind. Med. 7. AMBERGRISE. *Dale.*

It is a solid, subaceous, or fat Substance, not ponderous, of an Ash-colour, variegated like Marble, and marked often with white Specks.

There are two Kinds of Ambergrise, the Ash-colour and Black. The first is to be preferred, when cleared of all Filth, with a strong Smell, and light, and which, being pricked with a hot Needle, drops a fat odorous Juice. The Black is less esteemed, as being mixed with Earth or Mud, or adulterated, according to some

The Glebes of Ambergrise are sometimes found so big, as to weigh above two hundred Pounds. It is gathered in great Quantities about the *Molucca* Islands, in the *Indian* Sea, and is frequently found on the Shores, both in the *East-Indies*, and in *Africa*. Pieces of it are likewise met with on the Northern Coasts of *England*, *Scotland*, *Norway*, and *Ireland*, being thrown ashore by the Tide.

Ambergrise melts by Fire into a gold-colour'd or yellow Resin.

In distilling Ambergrise, we get first an insipid, then an acid Liquor or Spirit, and a yellow Oil of a most penetrating Smell, with a small Portion of acid volatile Salt, like Salt of Amber, a black, shining, bituminous Matter remaining in the Retort. From whence it is plain, that Ambergrise consists of fine volatile Parts, intangled in other thicker Parts, both saline and bituminous.

This Drug is very much used by Confectioners and Perfumers, in giving a fine Smell to their Preparations; and is recommended by Physicians as proper to raise the drooping Spirits, to supply the Defect thereof, and to accelerate their Motions. Hence it is both a cephalic and cordial Medicine, enlivens the Senses, and is very effectual in Faintings, and all other Affections of the Head and Nerves. It is thought to be very instrumental in prolonging Life, and in producing such Effects, as are necessary for Generation. This Opinion prevails chiefly among the Eastern Nations.

It is used both outwardly and inwardly. The Dose, in Substance, is from one to four Grains, taken in a poached Egg, or in a Glass of Wine with Sugar and Spices. The Tincture, extracted with Spirit of Wine, is given from one to ten Drops. This Tincture is either simple or compound. The simple Tincture is made by only dissolving the Ambergrise in Spirit of Wine, and then separating the Solution from the Fæces. The compound Tincture is very fragrant, and is prepared in this manner:

Take Ambergrise and Sugar-candy, of each two Drams; Musk, twelve Grains; Civet, two Grains; Spirit of Wine, four Ounces: Digest them in a Glass Vessel for some Days, and then decant the Liquor, and keep it for Use. The Dose is from one Drop to eight or ten, taken in *Spanish* Wine, Cinamon-water, or any other Liquor.

Riverius commends Ambergrise as a Strengtheners of the Stomach, and as a Specific in the *Fames Canina*; and he likewise orders it in hypochondriacal Melancholy, after Purging, and a due Use of diluting Liquors, for reviving the native Heat, and exhilarating the Spirits. It is however to be observed, that all Perfumes, and strong Smells, are hurtful to hysterical Women, and those in Child-bed; and the same thing is remarked in many hypochondriacal Men; for at this time, few People can bear Perfumes, or strong fragrant Smells; and for that Reason, the Compositions used by former Physicians, in which Ambergrise was an Ingredient, either alone, or joined with Musk, are now almost quite laid aside. Sweet Smells, though offensive to hysterical Women, are, nevertheless, of great Service to them, applied by way of Fumigation to the Uterus. Ambergrise is an Ingredient in the *Pulvis Diambrae* of *Mesue*, the *Pulvis Aromaticus Rosatus* of *Gabriel*, the *Pulvis Lætificans* of *Nicolas Praepositus*, the *Pulvis contra Pestem*, or *Brzoarticus*, of *Renaudus*; in the *Electuarium Diasphyron* of *Charas*, in the *Tabella Magnanimitatis*, and *Asplectic Balsam* of that Author, and in the *Confectio Alkermes* and *Hyacinthi*, when they are complete; for in these Compositions, both the Ambergrise and Musk, are often ordered to be left out. *Groffroy.*

Ambergrise is sometimes counterfeited by mixing a little Musk and Civet, with Storax, Labdanum, and Aloes Wood.

And sometimes it is adulterated, by mixing with it some of the above-mentioned Perfumes, and a great deal of Bull's Blood dried.

Of AMBER, properly so called.

The Accounts we find of the Origin of Amber in the Memoires and History of the Royal Academy of Sciences, are thus:

'Tis commonly believ'd, that the yellow Amber, found in the Sea of *Dantzic*, [the *Baltic* Sea] is the Gum of some Trees, that grow on the Shores of that Sea, from which it falls into the Water. But *M. Tournesfort* has a Letter from *Aix*, with an Account, that yellow Amber is found in the Clefts of the most naked and barren Rocks in *Provence*. This gives us Reason to believe, that this Gum is not a Vegetable, but a Mineral; and that the Amber of the Sea of *Dantzic* does not fall from Trees, but is carried thither by the Torrents. *Histoire de l'Acad. Roy. des Scienc. 1700.*

M. Galland, of the Academy of Inscriptions, confirms the foregoing Account. For he found yellow Amber at *Marseilles*, on the Sea-shore, in a Place where nothing of a Tree grows, and where the Sea is bounded by nothing but very steep Rocks, which are dash'd upon the Sea in foul Weather. This yellow Amber then must have been loosen'd from the Clefts of these Rocks, and to have fallen into the Sea. *Ibid. 1703.*

The

The Marquis of *Bonnac*, the *French* Envoy extraordinary to the King of *Sweden*, having seen, in a Piece of Ground near *Dantzic*, belonging to M. *Grata*, Post-master General of *Prussia*, some fossile yellow Amber, of the same Nature with what is found on the Sea-shore, began to consider it more attentively than before, and to question whether it were formed of the Froth of the Sea, as it was commonly thought. The Cardinal Primate of *Poland*, who was with him, had the same Curiosity, and told him, it would be good to know the Opinion of the Academy of Sciences upon the Matter. M. *de Bonnac* wrote to *Paris*, and immediately the Academy took care to collect all the Discoveries, that had been made in the Affair; and after they had done all that lay in their Power, sent the Result of it in the following Memoire.

Memoire concerning yellow Amber.

As the finest yellow Amber, and in the greatest Quantities, comes from the two *Prussias*, the Academy Royal of Sciences may possibly be less acquainted with the Subject than they who do them the Honour to consult them. They will, however, communicate what they know, and add thereto some Reflections. They won't trouble themselves with what Authors have written about it, supposing it to be well known, and that it is not a Compilation which is requested of them.

Mess. *Cassini* and *Maraldi*, having in 1700. travell'd into the Southern Provinces of *France*, in order to employ themselves about the Prolongation of the Meridian of *Paris*, discovered some Mines of Jet, and a kind of yellow Amber, in a Mountain of *Languedoc*, called *Bugarach*, distant from the Sea twenty-seven thousand six hundred Toises, [about two and thirty Miles] and separated from it by other very high Mountains. Some take Jet, as well as yellow Amber, to be a Species of Succinum. The Inhabitants of *Bugarach* use their yellow Amber to burn in their Lamps. It is pretty like a Resin, and not so hard as that of *Prussia*. Near the Mines of *Bugarach*, are Springs of Salt-water, which form a little River. We are very credibly assured, that yellow Amber is also found in *Sicily* on the Sea-shores, along the Coasts of *Agrigentum*, *Catanea*, and *Leocata*; and in the Isle of *Corfica*, and also at *Bologna* in *Italy*, about *Ancona*, and in *Umbria*, in the open Fields, and at a great Distance from the Sea.

This, consider'd with what the Marquis has written, that he has seen himself taken up, on the Grounds of M. *Grata*, which are separated from the Sea by great Woods and Heights, Amber in all respects like that which is found on the Sea-shore, seems decisive in the Case, and a sufficient Reason to conclude, that this Substance is always produced by the Earth.

Besides this, we see small Animals inclosed in Amber, and these are always terrestrial Animals, as Flies, Ants, &c.

However to be better assured, it might be proper to examine, whether the terrestrial Amber have all the Characters and Perfection of the Amber found on the Sea-shore; for it might not be impossible, that the Sea, by its Salt, might give a finishing Stroke in the Formation of this Matter, and lend it the last Degree of Concoction.

Supposing then, that Amber was always produced by the Earth, the Question is, Whether it be a vegetable or a mineral Substance.

We never heard it said, that in *Prussia* there are any Trees from which Succinum distils in form of a Resin, or something like it. And yet it seems more natural, that Ants and Flies, which are sometimes seen in it, and are a certain Sign, that it was once liquid, should be inclosed in a Resin, that distils from a Tree, than in a Mineral formed in the Earth. To solve this Difficulty, we must suppose, that Succinum, like Petroleum, trickles from a Rock, or at least, that the Amber in which these little Animals are envelop'd, has continued liquid for some time upon the Surface of the Earth.

Whether we believe Amber to be a Vegetable or a Mineral, we have none to attest, that ever they saw it liquid, or so much as soft. It must however have been in that State, and even exposed to Sight, at the time when these little Animals were caught in it.

The Analysis of this Compound by the Chymists of the Academy, does not entirely determine to what Kind it belongs. They always find a very small Quantity of aqueous Liquor, which smells like Amber when 'tis rubbed, a good deal of acid volatile Salt, and the like of Oil, which is partly white like the Water, partly red, and partly very black, according to the Degrees of Fire given it in the Distillation. The Caput Mortuum is light, spongy, black and shining, which being calcin'd in an open Fire, goes away almost entirely in Smoke, without affording any fixed Salt.

The only Difference in the various Kinds of Amber is, that the most transparent, or the whitest, afforded more Oil, and volatile Salt, and a less Caput Mortuum, than the muddy or black; but these last never afforded any fixed Salt, tho' they left more of a Caput Mortuum.

The Oil of Amber smells like a bituminous Oil, which seems to shew, that Amber is a Bitumen; but there are Resins which

have the same Smell, and some, as Benzoin, which yield an acid volatile Salt; but we know of none from whence we can, at the same time, obtain a fixed Salt, and an Oil of a bituminous Odour. Hence the Academy is inclined to believe, that Amber is a Bitumen, and consequently a Mineral.

It appears from what has been said, how far the Academy stands in need of Information, before they can presume to determine more precisely in all that respects Amber. It will be proper to know in particular,

1. Whether there be any Salt-water, or vitriolic Water, near the Places where they take up Amber.

2. Whether it be usually envelop'd or mixed with any Earth, or particular Substance.

3. If there be any Marks to distinguish the particular Places in the Earth, where the Amber is to be found.

4. Whether the fossile Amber be any way different from what is taken up on the Sea-shore.

5. Whether they gather white from the Earth as well as yellow; and, whether it be the Air, or the Heat of the Sun, that changes the Yellow into Black.

6. Whether black and yellow Amber are ever both found in the same Place.

7. Whether we can be certain of what we are told by *James Hartman*, in his Account of the Amber of *Prussia*, and by *Bartholinus* concerning that of *Denmark*, that it is found under a kind of foliated Earth, like the Barks of Trees, and is accompany'd with a sort of fossile Wood, in which, however, neither Pith nor Fibres, Joint nor Bud, can be distinguished. *Histoire de l'Acad. Roy. des Scienc. 1705.*

But the following Observations on Amber from *Hoffman*, a Physician who had very good Opportunities of examining the Subject, put the Origin of Amber beyond Dispute.

The Earth, that rich Storehouse of Nature, contains in its Bowels not only Metals, Minerals, Stones, Earths and Salts of various Kinds, but also cherishes within its Bosom Bodies of a sulphureous, fat, unctuous, and tenacious Substance, which pass under the general Name of *Bitumen*.

The Nature of Bitumen does no way belong to the common and mineral Sulphur; for this will by no means be resolved into Oil or Spirit, by Distillation; but Bitumens distilled in a Glass Vessel afford Oil and Spirit, besides an exhausted and sluggish Earth. Even the Vapour, as well as the Smell, emitted by mineral Sulphur, are manifestly unlike the Exhalations from bituminous Bodies.

The principal Distinction of Bitumens is into the noble and ignoble Kinds, and both these are either dry or fluid. Within the Class of the noble Kind, are comprehended *Ambergrise*, and *Succinum*, or Amber; among those of the other Kind, are Stone-coal, Pit-coal, Terra Ampelitis, and Asphaltum, which however are very different from one another, both in Consistence and Goodness. To this Class also belong Naphtha and Petroleum, which are a fluid Substance, by which Property they are distinguish'd from the rest, which form a solid Mass.

As to Amber in particular, it is produced plentifully in *Prussia*, which is famous for being the proper and native Country of it. Though this Bitumen be generated in the Earth, there is plenty of it found in the *Baltic* Sea, by the Shore of *Sudwic*, where it swims on the Water, and is carry'd along by the Waves, whence it is taken up in Nets. The Places most remarkable for Amber, are the Villages of *Fischhausen*, *Grossduschein*, *Wernichen*, and *Palmoniet*. Nor even is this Amber produced from the Sea, but, in tempestuous Agitations of the Waters, is washed out of the Bowels of the Earth by the Waves, and at last thrown towards the Shores. Very properly then may this bituminous Body be reckon'd in the Class of Minerals; for it is a Product of the Earth, and is contained within its proper Veins, as well as Pit-coal, or other Minerals.

The Courses of these Veins were discovered some Years ago, by Order of King *Frederic*, in the following manner: In digging they first met with Sand, which being removed, the next thing that offer'd, was a Stratum of white Clay; digging under this, they opened a ligneous Stratum, that seem'd to be compacted of old Wood, which, however, could be set on Flame. Under the Bottom of this Stratum, in most Parts, they found Ore of Vitriol, which being exposed to the open Air, shot forth in Flowers of Vitriol, free from the least Tincture of Copper, and like those which proceed from the *Hessian* Iron Ore.

At last digging still deeper, they came upon a Stratum of Sand, which proved very fortunate; for out of this, in several Places, with convenient Instruments, they extracted Abundance of choice Amber. For it is a thing worthy Observation, that Sand is usually the Matrix of Amber; so that where they find a great Bed of Sand in the Bosom of the Earth, they are not without Hopes of meeting with Amber. After the same manner do they get it out of the Sand in the Marquisate, near *Kustrin*; and in the Territories of *Stolpen* and *Dantzic*, it is also found in Lamps.

Hence appears the Falsity of the old Fable, which would have us believe, that Amber is the Resin of Trees, which distils from their

their Bark into the Sea, and is there digested by the Heat of the Sun into a Body of that Kind.

The Manner in which this Bitumen is generated, seems to be this: From that bituminous fossile Wood, which we just now mentioned, by the Accession of the subterranean Heat, there distills an Oil much like Naphtha or Petroleum, which in penetrating the subjacent Strata, passes through the Vitriol Ores, where by mixing with its Acid, it is coagulated into a Substance of a resinous Form. The Reasonableness of this Opinion will appear from the following Considerations:

1. That Amber at its first Growth was liquid, may be proved from its being often seen conglobated by Nature itself into a round Form.

2. Sometimes Insects of various Kinds stick and are included in Pieces of Amber, which they could never have been, if the Matter in which they are circumvolved, had not been liquid.

3. We may conclude, that Amber is a Concretion of an Oil much like Petroleum, because Oil of Amber comes near to Petroleum, both in Smell and Virtue, and both of them are equally difficult to be dissolved by the most rectify'd Spirit.

4. *Charlton*, a very sagacious Observer of Nature, in his Treatise of Fossils, affirms, Pieces of this Bitumen have been frequently found, which have held Naphtha and Petroleum included within them.

5. The acid Salt of Amber is of a very fixed Nature, and not inferior in Virtue to the Acid of Vitriol.

6. What will afford great Light in this Affair, is that physical Experiment, in which it is observed, that all distilled Oils, scarce one excepted, and amongst them aromatic Oils, being mixed with Oil of Vitriol, or pretty strong Aqua-fortis, condensate into a resiniform Mass, which, held to the Fire, is readily set on Flame.

7. Besides, fossile Woods and Coals, by Distillation and Rectification, yield an Oil, very like Oil of Amber and Petroleum.

8. Lastly, the very Disposition of the Strata, which we have related, is a good Proof in this Matter. The first of these is ligneous, the second vitriolic, and the last composed of Sand, at the Bottom of which lies the Amber, scattered here and there in Bits.

There is most Plenty of Amber along the Shore of the *Sud-wic* Sea, especially when a tempestuous North Wind blows; for it seems probable, that the Sea penetrating by some secret Passages into those subterranean Places where the Amber is nourished, by violent dashing and breaking against them, separate from time to time Pieces of this Bitumen, and carry them away with it.

Amber is of various Colours; the best is reckon'd the pellucid, quite free from Spots, and which bears the highest Price. For this the *Chinese* give its Weight in Gold, and make their Idols of it after an elegant and master-like Manner. I lately saw a convex burning Speculum, made of this pellucid Amber, in the manner of one made of Glass, which the Landgrave of *Hesse* keeps in his Cabinet of Curiosities. Next to the pellucid is the white, after that the yellow, and lastly, the brown, which is the worst Amber of all. No less various are the Prices; for the larger and purer, so much the dearer are the Pieces; and the more pellucid they are, the more are they valued.

They talk much of a black Sort of Amber, which yet is no-where to be met with, and so is only believed upon common Report. Instead of this, they sell a black and solid Fossile, which is a kind of Asphaltum, and dug out of the Coal-mines in *England*, and made into several Utensils for the Use of the Inhabitants.

If Amber be pulverized, and mixed with an equal Quantity of Sand, it will afford by a Sand Distillation, in a Glass Retort, an extraordinary Quantity of Oil, insomuch that at least six Ounces of Oil may be had out of one Pound. If the Fire be augmented to an intense Degree, towards the End of the Operation, a Salt of an acid Taste will be left in the Neck of the Retort, which being separated from the Oil, and again sublimated, is what we commonly call the volatile Salt of Amber, tho' it be not of a remarkably volatile Nature, since it cannot be raised but by a vehement Fire. Perhaps it obtained that Name from its Subtlety, which it has in common with the volatile Salt distilled from the Parts of Animals, by augmenting the Fire, after the Oil has been exhausted.

It is observable of this Oil of Amber, that it does not so intimately unite with the most rectify'd Spirit, as do other distilled Oils, since it is never entirely dissolved, but only some of the more subtil Parts of the Oil pass off into Spirit, which is a Sign of its being mixed with a good deal of mucilaginous Substance, which after a gentle Evaporation, and stirring with a Stick in an open Vessel over the Coals, presents itself in View. If Oil of Amber be mixed with Water, and distilled over again in an Alembic, it becomes much more penetrating; and being made into a Plaster with other Ingredients, has been more than once, by our own Experience, found efficacious in detaching hard and inextinguishable Tumours of the Glands. What

remains in the Vessel after Distillation, is a crude and mucilaginous Mass.

We ought to say something too of the Solution of Amber: Indeed I could wish, that we knew a Method, which some boast of, to reduce small Pieces of it by Melting, to a bulky Mass, without destroying its Contexture. But since I have Reason to doubt, whether there be any such Method of Preparation, I shall here endeavour to explain what we know by Experiment, with respect to this Solution.

In the first place, Amber is almost totally dissolved by a strong Lixivium boiled with it. This Lixivium is prepared of the caustic Salt of Regulus of Antimony, which is made by melting two Parts of Nitre with one Part of Regulus of Antimony, in a Crucible over a strong Fire. This Salt mixed with Amber in equal Quantities, by a moderate Decoction in a sufficient Quantity of Water, almost entirely dissolves it; and, what is worth Observation, the Lixivium, which was before of a very caustic Savour, loses much of its Acrimony, and becomes more temperate; the Reason of which perhaps may be, that the lixivious Salt is broken and tamed by the Acid lodged within the Amber, which, being by this means reduced to a Liquor, becomes an excellent Medicine in Obstructions of the Viscera, and for Promoting Excretions of all Kinds, and consequently for chronic Disorders.

Some Notice must also be taken of the Solution of Amber for mechanical Purposes, that is, for preparing a most excellent Vernish, which the Artificers make a great Secret of.

They take one Pound of powder'd Amber, which they melt in a proper unglaz'd earthen Vessel over a Charcoal Fire, and pour it, whilst fluid, upon an Iron Plate; then they powder it again when concreted, and afterwards dissolve it entirely in an unglaz'd earthen Vessel, adding to it first Linseed Oil, prepar'd and boil'd with Litharge, and afterwards Spirit of Turpentine. With this they incrust Vessels of Wood and of Metals, and afterwards polish them, being first carefully and artfully dried.

From this Process it readily occurs, that Amber contains much aqueous and mucilaginous Humidity, of which it must be depriv'd by Liquefaction; and after this, the Linseed Oil and Spirit of Turpentine find an easy Ingress into the Gum-resinous Mixture remaining. Nor is a subtil distill'd Oil alone adapted to dissolve the Amber, without being temper'd with an express'd Oil, which evidently shews, that the Substance of Amber, besides its resinous Particles, has some which are mucilaginous.

Lastly, I cannot excuse myself from relating a very curious Experiment, which I some Years ago made with Amber. I put some powder'd Amber in a Glass Vessel, and pour'd upon it twice the Weight of Oil of Almonds; I then placed the Glass in one of *Papius's* Digestors accurately made, which was one third full of Water, and placed on its Cover very exactly, and then put under it a moderate Fire for above an Hour; I took the Vessel out, when it was cool, and found the Amber dissolved into a gelatinous, pellucid Mass, with a small Quantity of fluid Oil upon it.

By this Experiment we discover clearly, that express'd Oils can do a great deal towards dissolving the firm Texture which we find in Amber; and this is principally brought about, when the Elasticity of the included Air is increased, and the Corpuscles of Oil are violently forced into the smallest Pores of the Amber, by the Heat of *Papius's* Machine. *Hoffman Observat. Physico-Chym. L. 2. Obs. 23.*

Many great Virtues are ascribed to Amber, especially when taken inwardly, in a cold State of the Brain, and in Catarrhs, in the Head-ach, sleepy and convulsive Disorders, in a Suppression of the Menses, hysterical and hypochondriacal Affections, in a Gonorrhœa, Fluor Albus, and Hemorrhages. The Dose is from a Scruple to a Dram, in a poached Egg, or any other proper Vehicle.

Take, for Instance, of Amber finely powdered, or reduced to an Alcohol on a Porphyry, Conserve of red Roses, and Rosemary Flowers, of each half a Dram; Syrup of Stœchas, a sufficient Quantity for a Bolus; to be taken in the Morning, to check the Flux of Rheum, and blunt its Acrimony in Colds in the Heads, Catarrhs, and Running at the Nose.

Take prepared Amber, Camphire, and Dragon's-blood, of each a Dram; Syrup of dry'd Roses, a sufficient Quantity to make an Opiate; of which, the Quantity of a Dram is to be taken every Morning, in a Gonorrhœa, after due Preparation of the Body.

Take prepared Amber, and prepared Millepedes, of each two Drams; Myrrh, half a Dram; Conserve of the Flowers of white Dead-nettle, one Ounce and half; Syrup of common Yarrow, a sufficient Quantity for an Opiate; to be taken in the Quantity of two Drams twice a Day in the Fluor Albus.

Take

Take of prepared Amber, a Scruple; Sperma-ceti, and Terra Japonica, of each fifteen Grains; Syrup of Ground-ivy, or of Diacodium, a sufficient Quantity to make a Bolus, in a Spitting of Blood, or an habitual Cough, proceeding from an acrid Phlegm.

Take of Amber, half a Dram; Castor and Myrrh, of each twelve Grains; Saffron, six Grains; Conserve of Wormwood, or Extract of Rue, a sufficient Quantity to make a Bolus, in hysterical Suffocations, and in a Suppression of the Menfes.

Externally, Amber is used as a Fumigation, in Cataplasms, and Cucuphæ, in Disorders of the Head or Brain. The Fumes of it, received at the Mouth, are often found successful in beginning Quinsies, a Falling-down of the Uvula, or Swelling of the Tonsils from a Catarrh.

PREPARATIONS of AMBER.

The Preparations of Amber are, first, prepared Amber, properly so called, which consists in reducing it to an impalpable Powder upon the Porphyry; and this Powder is much preferable to the Magistery of Amber. Secondly, the Tincture of Amber, with tartariz'd Spirit of Wine, which may be taken from a few Drops to a Dram. With this Tincture is made the volatile oily succinated Salt; by mixing equal Parts thereof, and of the common volatile oily Salt, and then digesting them in a gentle Heat. This new Tincture is cordial and diaphoretic, and of surprising Efficacy in sleepy Affections, Catarrhs, hysterical Disorders, Palpitation of the Heart, Fainting, Obstructions of the Menfes, and Palsies. The Dose is from a few Drops to a Dram, in Tea, Wine, or any other convenient Liquor.

Externally, the Sutures of the Cranium, the Nares and Temples, are anointed with it, in Catarrhs; the Scrobiculum Cordis, in Faintings and Palpitations; and the umbilical Region, in hysterical Affections. *Geoffroy.*

Hoffman's TINCTURE of AMBER.

The fragrant Oil of Amber, which is very agreeable and friendly to Nature, and endued with a strengthening and balsamic Virtue, is so firmly and closely united and connected with its terrestrial and acid Parts, as it is a subterraneous Resin, that it cannot, without great Difficulty, be separated from them. We have need then of a Key to open those Cloisters, in which the sulphureous Parts are confin'd, and to release them from these heterogeneous Corpuscles with which they are fetter'd: And the most convenient Instrument for this Purpose is an alkaline Salt strongly calcin'd.

Mix therefore, very exactly, Salt of Tartar, with an equal Portion of choice Amber reduced to a very fine Powder, and pour thereon a sufficient Quantity of Spirit, to the Height of four Fingers above it. After a previous Digestion, let a Distillation be made out of a Glass Cucurbit with a Sand Heat, and there will be drawn off a Spirit impregnated with the most subtle and fragrant Oil of Amber, which, though it be in itself endued with an extraordinary strengthening Virtue, will yet serve to much better Purposes, by contributing towards furnishing us with an excellent Tincture.

The transparent Amber is to be chosen before that which is brown, or dark-colour'd, as consisting of a softer sulphureous Matter. Let this be bruised and levigated in a Mortar to a very fine Powder; into which, being placed on a Marble Stone, drop Oil of Tartar per deliquium, and mix them very carefully till they come to a Paste, which must be dry'd gently. This done, pour thereon a sufficient Quantity of the Spirit prepared as above, and then digest them in a Glass Vessel, or Vial close stopp'd with a gentle Heat.

By this means we obtain the most generous and efficacious Essence of Amber; a Remedy highly to be valu'd, were it only on account of its most grateful Taste and Smell.

The most convenient way of taking it is by instilling some Drops of it into Sugar, or Syrup of Pinks, or of the acid Juice of Citrons. The Morning is the usual time when Persons take it, for corroborating the Stomach, Head, and a weak nervous System, drinking afterwards some Cups of warm Liquor, as Coffee or Chocolate; it may also be taken at Dinner in sweet Wine. It provokes the Menfes, but restrains the Fluor Albus, and is an excellent Medicine in rheumatic Disorders.

It is remarkable, that this Essence dropp'd into Water, is not precipitated like other Essences or Solutions of Oils and Resins; and, that a few Drops of it, instill'd into a large Quantity of Water, impregnate the Whole with the grateful Odour of Amber; which is a strong Proof, that a Medicine of this Nature, which so amply diffuses itself through the least Corpuscles of Water, is of very fine Parts, and by Consequence can make its Way into the very innermost Fluids and Solids of our Bodies; so that a small Dose may be expected to produce a considerable Effect. *Hoffman. Observat. Physico-Chym. Lib. 1. Obs. 17.*

Somewhat different from this is Boerhaave's Tincture of Amber.

Reduce the best transparent yellow Amber to fine Powder, in order to increase its Surface; grind this Powder in a Glass Mortar, with the alkaline Oil of Tartar per deliquium, the longer the better, that it may become a thin, well-wrought Paste; put it into an urinal Glass, dry it in a warm Furnace, and resolve it in the open Air for several times; for it is hard to be penetrated. At length the Matter being well dried, put it into a tall Bolt-head, with a very long and slender Neck; pour pure Alcohol thereon, to the Height of three Inches above it; shake them together, and simmer them on the Furnace for some Hours, as may thus be commodiously done. The Tincture will become red, and when cool, and grown clear by standing, should be carefully decanted from its Fæces, into a clean Glass, kept close stopp'd. In other respects proceed as before, till almost the whole Body of the Amber be taken up in the Tincture. This may also be prepared in the same manner by the means of Alcohol alone, without Alkali, though to better Advantage with it.

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Hence we see, that Alcalis have a Power of gaining Entrance for Alcohol, into a Body brittle like Glass, whose wonderful, resinous, and particular Nature, no one has hitherto particularly explained; but in the Composition thereof, a fossile Acid, and a Petroleum, or something like them, seem to concur; whence it is difficult to dissolve. Its Tincture, however, is neither acid, alkaline, nor oily, but holds the whole Substance of the Amber dissolved. It is of a bitterish aromatic Taste, wonderfully refreshing, having a perfectly restorative Fragrance, and some Degree of Stypticity. When well made, it in the Winter-time grows thick, and deposits a kind of mealy or somewhat resinous Substance, which shews how richly impregnated it was with the dissolved Amber; but when warm Weather returns, it again grows clear, and takes up the Powder it had let fall. If one half of the Alcohol be drawn off from this Tincture, the remaining thick Part deposits a kind of powdered Amber, which, being collected separate, is of a highly aromatic Taste, and Odour. It is very surprising, that this Substance should be so equally, and almost totally, dissolved in Alcohol, without any observable Separation of its Principles; yet at the same time acquire such noble medicinal Virtues, as were not before found in the entire Amber; especially, as by Distillation it is divided into such different Parts, each of them of a different Virtue and Nature, as we find by its Analysis.

And hence again we see, by a manifest Example, that chymical Productions may differ incredibly, as they are obtained or prepared with a different Menstruum, or in a different Manner. And hence also we see how very different Principles may lie concealed in a certain Compound, without giving any Sign of their being there, or of manifesting their own Nature; and this, though the Compound be very subtilly divided, either by Trituration, or a Menstruum. And hence again it appears, how much a simple Division, made by a Menstruum, without any Extraction of the Principles, may produce new Virtues.

This Tincture has an incredible Efficacy in all those Distempers, which proceed from too great a Mobility of the immediate Instruments of the human Affections, Spirits, and nervous System; and particularly from a Relaxation of the Parts, through Weakness. And hence it proves of wonderful Service in hypochondriacal, hysterical, languid, cold, watery Cases, and Convulsions often proceeding from them. So that Mr. Boyle and Helmont have for this Reason placed it among the noblest Anti-spasmodics, and Anti-epileptics, when the Disorder proceeds from those Causes. The Dose is from ten to eighty Drops, three times a Day, in Spanish or Canary Wine.

The Method of making the Oil, volatile Salt, and Spirit of Amber.

Take of coarse Amber in fine Powder, one Pound; of Tobacco-pipes, Bricks, Sand, or Bole, also in fine Powder, three Pounds; mix them well, and with the Mixture fill a Retort half full, set it in a Sand Furnace, fit to a Receiver, (not luted) make to it a Fire of the first Degree for one Hour, increase it to the second, and so keep it two Hours; then to the third, in which keep it four Hours. In the first Degree, some of the acid Water, we call Spirit, with a little of the finest Oil, will distil. In the second, the Spirit and Oil will continue dropping, and some of its volatile Salt will rise into the Neck of the Retort. The third will elevate more Salt, with a grosser Oil; and if the Fire be enlarged to the fourth Degree, it will raise a thick Balsam. As the Salt rises into the Neck of the Retort, it ought to be scraped out with a clean flat Stick, and put upon brown Paper to suck up the

the Oil: The Salt by this means will be white; and if it be desired more fine, it may be dissolved, filtered and evaporated, and it will leave a very white Salt. When the Distillation is over, and all cool, separate the Oil and Spirit by a Funnel, or other separating Glass. If the Oil is desired to be rectified, it may be put into a long-bodied Retort, and placed in Sand, and by gradually raising the Fire to the second Degree, there will distil a fine yellow, and clear Oil: But if a pure white and ethereal Oil be desired, it must be put into a Cucurbit, with three times the Quantity of Water to that of Oil (with which the Vessel must not be quite half full); and then fit on the Head and Receiver, and gradually bring the Fire to the second Degree, or so as to make the Oil and Water bubble; and there will distil a pure ethereal Oil, which must be separated as before. Separate the Water from the Oil that is left in the Retort; and because it will be impregnated with some Salt, put it into the Receiver, into which was made the first Distillation, and shake it well to rinse out the Salt. Then pour all into a Cucurbit, fit to it a Head and Receiver, give a gentle Fire to evaporate the Water, till the Drops fall a little acid; then let it cool, and put to it the Spirit, which, separated in the first Distillation, rectify them together, and there will be a Spirit of Amber.

We have included three Medicines in one Process, because they so naturally arise out of the same. The rectified Oil is sometimes internally prescribed in nervous Cases, joined with Spirit of Sal Ammoniac, or of Lavender, or other Liquors, from five to fifteen Drops. The thicker Oil is most used externally in fixed rheumatic Pains and Aches, as also to paralytic Limbs; but some commend it inwardly in old Gleet, and say it answers even when the best Turpentine Balsams fail. The Spirit is used much to the same Purpose, both internally and externally, from ten Drops to one Dram in any convenient Vehicle, inwardly; and outwardly, rubbed in by itself, or mixed with other suitable Liquors. But the volatile Salt is the main Part, and so much in use, that the other are of little Value with respect to it; the Demand for this being vastly greater than for the other, in proportion to what every Process necessarily produces of each. This is a most admirable cephalic Detergent. It extremely attenuates, cuts and penetrates into the most remote and minute Recesses, whereby the whole nervous System is, as it were, new scoured. Its chief Tendency in Secretion, and what it carries along with it, is by Urine. In the convulsive Deliriums of Fevers it is mightily prescribed, and is reckoned not inferior to any thing in such Intentions; because, besides its peculiar Efficacy upon the Nerves, it also conduces much with Alexipharmacs to promote a Diaphoresis: In all chronic Cases likewise, as Epilepsies, Palsies, and the like, it is scarce ever left out of Prescription: The Dose is usually from three Grains to fifteen. This Salt has further one useful Property, which seems attended to but by few, and that is, quickening the Operation of some Cathartics, especially of the aloetic and resinous Kind. A few Grains, with any of the milder officinal Pills, as Ruffi, and the like, will make them brisker by much in Operation, and yet rather milder; and this it seems to do, by dividing the Parts of those Medicines so readily in the Stomach, that they begin to exert themselves sooner than they otherwise would.

The great Consumption of this Medicine, in Comparison to what the Amber produces of it, and the Price, upon that account, it bears, is so tempting to the Avarice of the present degenerate Race of Chymists, that it is most abominably adulterated; and therefore not to be trusted to from any Hands, but those who make it for their own Use. Some of these, once otherwise inspired Philosophers, sophisticate it with Sal Ammoniac, with Nitre, some with Cream of Tartar, and others, with Salt of Coral.

The trial of these Cheats may be discovered by a strong urinous Scent, if it be rubbed with Salt of Tartar; the second by its nitrous Taste; the third by Solution in clear Water: For the Salt of Amber will much sooner dissolve than the Tartar, and therefore manifestly leave that behind to View; and the last is discoverable by trying it upon a red-hot Iron; for the genuine Salt will fly away, the Vinegar, which the Coral had absorbed, will be destroyed, and nothing but an insipid Earth be left upon the Iron.

This Salt much best fits the Forms of Boles, Pills or Electuaries for taking; because in Juleps and Draughts, in which sometimes it is inadvertently ordered, it is extremely nauseous; the genuine Salt having a mixed Relish of Salt and Sulphur, which in a liquid Form lies so naked to the Palate, that it often urges the Patient to reject it by Vomit immediately after taking. *Quincy's Dispensat.*

Many Chymists endeavour to recommend their Salt of Amber, by its extraordinary Whiteness, and this is generally a Sign of its being adulterated; but if genuine, it is much the worse for being deprived of all its Oil, which makes it look brown.

The volatile Salt is diuretic, and esteemed a Specific in hysterical, convulsive; and spasmodic Complaints, taken from ten Grains to half a Dram; and with that is prepared the succinated Liquor of Hartshorn of *Michael*, very much recommended in the epileptic Fits of Children. This Liquor is made by dissolving as much Salt of Hartshorn and Salt of Amber in Spirit of Hartshorn, as the Menstruum will take up. The Oil is useful in hysterical, cephalic, and nervous Complaints, taken inwardly, from two to twenty Drops. Externally, it is used in the Gout, Palsy, and Catarrhs, by rubbing it into the Part affected; with it is prepared the succinated Balsam of Sulphur; and it is an Ingredient in the *Emplastrum Magneticum* of *Angelus Sala*.

Amber is an Ingredient in the *Trochisci de Carabe*, in *Crato's Pilule de Succino*, in *Charas's* Stomach Plaister, and in his diaphoretic and styptic Plaisters. *Geoffroy*.

Succini Potestates. Powers of Amber.

Take Oil of Amber, one Ounce; volatile Sal Ammoniac, half an Ounce; grind the Oil and Salt well together in a little Mortar; pour to them Spirit of Wine tartarized, half a Pound; and put them afterwards into a Bolt-head; invert a little Glass to make it fit for Circulation. Lute well the Joint, and put it in warm Sand, to stand in Digestion for four or five Days, shaking it two or three times every Day, in which time the Spirit of Wine will have imbibed the Oil and Salt; set it by, and when it is cool, put it in a Phial well stopp'd, for Use.

This has the Virtues of the Oil, and is fitter for Prescription internally, because it better mixes with any Vehicle for the Convenience of taking. Its Dose is from ten Drops to thirty or forty. *Quincy's Dispensat.*

Boerhaave's Analysis of Amber.

Take a capacious Glass Retort, with its Neck cut off, so as to leave an Orifice two Inches wide or more; put into it Pieces of common Amber, well cleansed from Sand, Dust, or other Foulness, so that it may fill two thirds of the Capacity. Apply a large Receiver, and lute the Junction with the common Luting; distil in a Sand Furnace, with a Degree of Heat a little greater than that of boiling Water; thus there will come over a copious, thin, limpid Oil: Continue this Degree of Heat, so long as any Oil comes over, and keep it separate. Then apply the Receiver again, and cautiously raise the Fire, till a second Oil begins to rise, which will be yellow, large in Quantity, and still transparent: Proceed patiently with the same Degree of Heat, so long as this Oil comes over, which it continues to do for a considerable time; but for the Elegance of the Operation, this also might be kept separate. Now, again, raise the Fire gradually, till a white, saline, woolly Matter appears in the Receiver, but particularly in the Neck; then gradually raise this Fire a little, and continue it increasing, till no more of this Matter comes over; but the Fire must not be increased too quick, otherwise the volatile Salt would mix with the gross Oil, that should follow after, and thus be in a great measure lost therein. It is best to remove the Receiver, take out the Productions, and keep them separate; but during the whole time, that this volatile Salt runs, a red Oil also comes over, still almost transparent. The Fire being now increased to the utmost, there comes over a gross, viscous, fat Oil, thick like Turpentine. When this is risen, if a Fire of Suppression be given, the whole black Matter now becomes stultent, rises into the Neck of the Retort, and thus comes into the Receiver, in form of a hard, black Mass; so that if the Neck of the Retort is not left wide, it will be thus blocked up, and the Glass be burst in a dangerous manner, with a loud Noise, and often a firing of the Matter. But if, before the Fire of Suppression was used, a large Quantity of Sand were thrown upon this last Remainder, it will divide the Matter, and cause it to come over, without Danger, in a black and dry Form. There remains at the Bottom of the Retort, a very small Quantity of brittle Forces, of scarce any Significance, so that the whole is volatile. If the Operation be carefully performed, so many different Productions are obtained, which may be purified by a new Distillation, and be rendered thin and limpid; but the volatile Salt, collected by itself, is perfectly acid. And this is the only Method, that I know, whereby a true Acid is obtained in a solid saline Form; for we have no Instance thereof in any other vegetable, animal, or fossil Substance. Tartar indeed is acid, but as it is scarcely dissolvable in Water, does not deserve the Name of a Salt. Oil of Vitriol, brought to an extreme Degree of Purity, shoots, in Winter-time, into transparent solid Crystals; but immediately dissolves again, and appears fluid as soon as the Cold is a little diminished; but the Salt of Amber long continues the same.

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Amber thus appears to be a very particular Body; its Oil resembles the fossil Oils of Petroleum, Naphtha, and the like; Parts,



but the Remainder; after the first or second is come over, nearly resembles Jet, and the acid Salt seems somewhat vitriolic. But the same thing, concreted, wonderfully differs from those Parts, into which Chymistry resolves it. Who would think, that Amber, its Powder, its liquid Solution in Alcohol, the Powder precipitated from its Tincture with Water after Distillation, and then washed; the Oils, Salt, and Colophony after Distillation; proceeded from the same Matter? Who could know the proper Virtues of each, and who, by joining them together again, could recompose Amber? The Oils, being purified by a repeated Distillation; have a sharp, balsamic, exciting, diaphoretic, diuretic, emmenagogic, and anti-hysterical Virtue, and when externally used, by way of Liniment, are very serviceable in restoring contracted, weak, paralytic, torpid Limbs; The volatile Salt is gratefully acid, balsamic, unctuous, penetrating, preservative, and stimulating to the Nerves and Spirits, being a true, volatile, acid, oily Salt, and therefore a capital Anti-hysterical and Diuretic; especially, if purified by a second Distillation. *Boerhaave's Chymistry.*

There is a Drug very different from those above-mentioned; which is called *Liquid-Ambar*. It is thus distinguish'd:

LIQUID-AMBAR, *Offic. Clus. Exot. 302. Jous. Dendr. 353. De Laet. Ind. Occid. 222. C. B. Pin. 502. Park. Theat. 1509. Raii Hist. 2. 1848. Liquid-ambar resina arboris Ocofolt diēta, foliis hederæ, odore Styracis liquidæ, J. B. 1. 323. Liquid-ambari arbor sive Styracifera, aceris folio, fructu tribuloide, (i. e.) pericarpio orbiculari ex quamplurimis apicibus coagmentato semen recondens, Pluk. Almag. 224. Phytog. Tab. 42. Xochiocotzo Quahuil, seu arbor Liquid-ambarum Indicum, Hern. 96. Styrax aceris folio, Raii Hist. 2. 1848. Styracem fundens, vel Styrax arbor Virginiana, aceris folio, Breyn. Prod. 2. 84. Platanus arbor Virginiana, aceris folio, potius Platanus Virginiana Styracem fundens, Ejuld. 2. 1799. Platanus Virginiana Styracem fundens, Herm. Par. Bat. Prod. 366. Acer Virginianum odoratum, Herm. Cat. Hort. Lugd. Bat. 641.*

LIQUID-AMBER. It grows in *Virginia*, *New-Spain*, and other Places of the *West-Indies*. The Part used is the Resin, which is a fat liquid Substance, of the Consistence of *Venice Turpentine*, yellow inclining to red, of an acrimonious Taste, aromatic and fragrant.

It heats and moistens, resolves and opens Obstructions, and is an Emollient and Ripener. Its principal Use is in Obstructions and Hardness of the Womb, in hard Tumours, &c. in Suffumigations, and the like.

Hernandez says, that this Balsam distils from a Tree, either spontaneously, or from a Wound. Some break up the Branches into small Bits, and, boiling them, skim off the Oil that rises on the Liquor, which they sell for the true Balsam; and this Liquor is thought by some to be the liquid Storax commonly sold by the Apothecaries and Druggists.

AMBROSIA. The Ambrosia, which some call Botrys, others the Artemisian Botrys, is a small Shrub, three Spans high, very much branched, with small Leaves at the Bottom of its Stem, like those of Rue, and its Sprays thick set with small Seeds, like little Clusters, which never flower. The Plant has a vinous and grateful Smell. The Root is slender, and two Spans in Length. In *Cappadocia* they weave it into Garlands.

It has the Virtue of restraining and repelling the Course of the Humours from any Part; and, used in a Cataplasm, is a good Astringent in the like Case. *Dioscorides, Lib. 3. Cap. 129.*

The Ambrosia of the later *Latins* is different from the Ambrosia of Antiquity, as *Strabus* himself acknowledges in those Verses of his *Hortulus*:

*Hand procul Ambrosiam, vulgo quam dicere mos est,
Erigitur, laudata quidem; sed an ista sit illa,
Cujus in antiquis celeberrima mentio libris,
Fit dubium ex multis.*

“Not far off is erected Ambrosia, as 'tis commonly called, an Herb of good Value; but whether it be the same with the Ambrosia so much celebrated in ancient Books, is doubtful on many accounts.”

Pliny says, that Ambrosia is a Name of no fixed Signification, but applicable to more Plants than one. Some called the Botrys (*Oak of Jerusalem*) by this Name. *Dioscorides* reckons Ambrosia among the *σεφανωματικά* (*Coronarian*) Plants; and writes, that the *Cappadocians* used it to make themselves Garlands; *καταπλεκται δὲ ἐν Καππαδοκίᾳ σεφάνους* (in *Cappadocia* they weave it into Garlands). But *Nicander* tells us, that the Appellation of *Coronary Ambrosia* was by some bestowed on the Lily, thus:

*Ἄ κρίνα, λείρεα δ' ἄλλοι ἐπιθεῖσιν ὄσπερ ἀνδρῶν,
Οἱ δὲ καὶ ἀμβροσίην.*
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“Lilies, which some of our Poets call *Liria*, and others “*Ambrosia*.”

Athenæus himself puts the same Interpretation upon ἀμβροσία, (*Ambrosia*) in the historical Commentaries of *Caryllus*; thus: *Καὶ ἀμβροσίαν δὲ αὐτὸν τι ἀναγράφει Καρύσιος ἐν ἱστορίαις ὑπομνήμασι γράφων ἕτως· Ὁ Νικάνδρος φησὶν ἐξ ἀνδρείδος τὴν νεραλίην Ἄλεξάνδρῳ τὴν καλλαίην ἀμβροσίαν φέρεται ἐν Κῷ* (*Caryllus, in his historical Commentaries, makes Ambrosia to be a Sort of Flower, when he writes, that Nicander affirms, that what they call Ambrosia grows out of the Statue of Alexander's Head in the Island of Coos*). The *Coronarian Ambrosia* of *Nicander*, in the *Georgics*, is a Lily; but I don't know whether we ought to understand the fore-mentioned Passage as relating to the same Flower.

The greater House-leek; or *Sempervivum*, is also called Ambrosia, as *Dioscorides* assures us in the following Words, which, on the Authority of a very ancient Manuscript, are thus to be read, rejecting all other homonymous Terms, which are certainly spurious: *Αἰζῶν μίγα ἐνέμασαι διὰ τὸ αἰεθαλεῖ τῶν φύλλων οἱ δὲ βύθθαλλον, οἱ δὲ ζώθθαλλον, οἱ δὲ ἀμβροσίαν καλεῖται* (The great *Sempervivum* is so called because its Leaves are always green; some call it *Bupththalmus*, some *Zooththalmus*, and others *Ambrosia*). *Salmasius de Homonym. Hyl. Intr. Cap. 62.*

The modern Ambrosia is thus distinguished:

AMBROSIA, *Offic. Ger. 950. Emac. 1108. Raii Hist. 1. 164. Chab. 376. Ambrosia hortensis, Park. 88. Ambrosia hortensis lanuginosa, Hist. Oxon. 3. 4. Ambrosia maritima, C. B. 138. Tourn. Inst. 438. Boerh. Ind. A. 2. 102. Ambrosia quibusdam, J. B. 3. 190. Ambrosia foliis Absynthii odoratis, humilior, Herm. Hott. L. Bat. 32. OAK OF CAPPADOCIA.*

It is a Plant which puts forth a single Stalk about a Foot high, dividing itself into many Branches; in form of a little Shrub: Its Leaves are cut like those of Wormwood, and are whitish; its Flowers are ranged along the Branches; every one of them is a Sort of Noddy, consisting of many yellowish Florets, which produce no Seed; the Fruit grows upon the same Footstalks as the Flowers, but separately; and every one of them contains an oblong blackish Seed: Its Root is as long as one's Hand, woody and small. All the Plant yields a sweet Smell, and an aromatic Taste, a little bitter, but agreeable. They cultivate this Plant in Gardens; it contains a great deal of exalted Oil, and but little Salt and Phlegm.

It revives the Heart and Brain; it stops Fluxions, it resolves and fortifies; it is prescribed internally and externally. *Lemery de Drogues.*

The Herb is in Use, which is of a repelling and restraining Quality, *H. Ox.* It has an astringent Virtue, says *Galen*. It is a Plant of a very fragrant Scent, hot and aromatic. *Boerb. Hist. Plant. 569.*

The Shortness of the Description *Dioscorides* has left us of Ambrosia, has given no small Occasion for Dispute and Controversy among Authors. *Nicander*, as is observed above, takes it for a Species of Lily; *Cordus*, for Southernwood; *Tabernaemontanus*, for Mugwort; *Matthioli*, for a kind of Nasturtium; *C. Baubine*, and his Followers, with whom we agree, to the Plant above-mentioned. *N. B.* The Catalogue prefix'd to the *London Dispensatory*, does not distinguish Ambrosia from the Botrys, but makes them both Synonymies of the same Plant. *Dale.*

Ambrosia, with the Antients, was called τὸ τῶν Θεῶν βρῶμα (the Food of the Gods); either because Mortals did not eat of it, or by eating became immortal; its extraordinary Fragrance recommending it to the Gods themselves. *Raii Hist.*

Besides the common Sort described by *Lemery*, *Roy*, in his Appendix, mentions a second Sort from *Herman. Cat. Lugd. Bat.* which he distinguishes by the Denomination of,

Ambrosia foliis Artemisiæ inodori, elatior, and gives it the following Description:

It shoots up with Stalks, three or four Feet high, bearing Leaves less than those of the common Sort, and nearly resembling the Leaves of Mugwort, deeply jagged, green on the upper Part, but pale on the lower, and of no sensible Smell. The Flowers on the Tops of the Spikes, or Ears, appear very small, are greenish on the Outside, but blackish within; and are, every one, succeeded by a single striated Seed, very like that of the common Sort. It is propagated by Seed sent from *Venice*. *Raii Hist. Append.*

Another Plant also called Ambrosia is the following, which happens to be an Ingredient in *Mrs. Sturven's* Remedy for the Stone.

AMBROSIA CAMPESTRIS, *Offic. Ambrosia campestris repens, C. B. Pin. 138. Coronopus Ruellii, Ger. 346. Emac. 427. Mer. Pin. 30. Raii Hist. 1. 843. Coronopus rupestris vel repens Ruellii, Park. Theat. 502. Coronopus sylvestris, sive Nasturtium verrucarium, Cod. Med. 41. Coronopus Ruellii, seu Nasturtium*



Nasturtium verrucosum, J. B. 2. 919. Rupp. Flor. Jen. 67. *Coronopus Ruellii*, *Cornu cervi alterum vulgi*, Merc. Bot. 1. 31. Phyt. Brit. 31. *Nasturtium verrucosum*, *Coronopus Ruellii*, Chab. 290. *Nasturtium verrucosum*, *capsulâ bivalvi, asperâ, seu hirsutâ*, Hist. Oxon. 2. 302. *Nasturtium sylvestre, capsulis cristatis*, Tourn. Inst. 214. Elem. Bot. 183. Boerh. Ind. A. 2. 12. *Nasturtium supinum, capsulis verrucosis*, Raii Meth. A. 99. Synop. 3. 304. Dill. Cat. Giff. 162. *Nasturtio affinis manspirmos, capsulâ verrucosa*, Pluk. Almag. 262. SWINES CRESSSES. Dale.

Ruellius's Buckhorn, or Swines-creffes, hath many small and weak straggling Branches, trailing here and there upon the Ground, set with many small cut or jagged Leaves. The Flower grow among the Leaves, in small rough Clusters, of a whitish Colour; which being past, there come in its place little broad and flat Pouches, in which the Seed is contained. The Root is white, thready, and in Taste like the Garden-creffes. Gerard.

AMBULATIO, Walking. Reckoned by *Celsus* among other Exercises which are serviceable in an Imbecility of the Stomach, such as reading with an audible Voice, Exercises at Arms, or with the Ball, and Running. Concerning Walking, he says it is better when diversify'd by ascending and descending, than in a smooth and even Plain, because it stirs the Body more, except it be very weak. It is better also to walk in the open Air, than under Piazzas; and better in the Sun, if the Head will bear it, than in the Shade; better in the Shade of Walls and green Hedges, than under a shady Roof; and, lastly, better strait forward, or in a right Line, than winding about. *Celsus*, Lib. 1. Cap. 2. Elsewhere (Lib. 6. Cap. 6.) he recommends much Walking in Dimness of the Sight.

It is generally said, that Riding is a more healthful Exercise than Walking, which appears to me an Assertion a little too general. For Walking is much more effectual in promoting an Increase of muscular Strength, and in imparting to the Fibres a due Elasticity, than Riding. But where any of the Viscera are much obstructed, and a Patient is too weak to support sufficient walking Exercise, there Riding may be more beneficial. Upon the Whole, it may be said, that Walking is best for the Preservation of Health, but Riding for the Cure of Chronical Distempers; for in those that are acute, neither is advisable.

AMBULO. This is the Name of a Disease, which has the Epithets *Flatulentus* and *Furiosus* bestowed upon it. It is likewise called *Platus furiosus*. It is an Inflation or Distention, attended with Pain, and variously periodical. It takes its Rise from subtle Vapours, forcibly shooting themselves up and down through the various Parts of the Body, as it is described and proposed, in a particular Case, by *D. D. Joh. Michael, Prax. Clinic. Special. Case 19. Castellus*.

AMBULON, called by *Ray*, in his History of Plants, the *Ambulon* of *Staliger*. This is the Name of a Tree growing in the Island *Arubiti*, the Bark of which sends forth a Fruit resembling Sugar, and of the Bulk of a Coriander-seed. *Raii Hist. Plant.*

AMBUSTA, Burns. These require Remedies that are detestive, in a moderate Degree, without a manifest heating or cooling Quality. For this Reason, Earth of Chios, white Lumberstone, Earth of Candy, and any Sort of light Earth, moistened with Vinegar, not very acrid, or Water, and applied to the affected Part, are very proper Medicines, and prevent the Eruption of Pustules. A whole raw Egg, immediately applied, is also very good in such a Case; for it moderately refrigerates, and dries without Mordacity. Anoint also the Place with Ink, (it is not known what Sort of Ink the Author means) or Frankincense, diluted with Water, or spread it over with boiled Lentils bruised, or bitter Vetches.

For Burnings by hot Water, before Blisters arise, wash them with the Water of pickled Olives, and apply the Olives themselves, bruised, with Polenta; or anoint the Place with plumsous Alum pounded with Vinegar, or with Bull's Gall infused in much Water; or wash it with Lye, Garum, or Brine; or anoint the same with the Roots of Lily, Hyacinth, or Narcissus, bruised with Oil of Roses, and reduced to a strigentitious Consistence.

Marcellus has left us the following Prescription for such Cases:

Dip a Woollen Rag in Honey, and, covering it with Barley, burn it; then, with eight Drams of the Ashes, mix four Drams of Cerus, eight Drams of Butter, of Wax, Fat of a Goat, and Oil of Roses, each sixteen Drams. But if the Blisters are risen, apply Sumach, and Polenta bruised; or Quick-lime, mixed with Cerate, and tied up in Linen. If the Part be ulcerated, cover it with bruised Leeks, or apply Purslane bruised with Polenta; or burn Pigeon Dung, wrapped in Linen, and use the Ashes diluted with Oil; this is an admirable Remedy. The Bark of the Pine or Fir Trees, dried Maidenhair, and burnt Myrtle-leaves, pulverized, are good to strew on the Place.

Either of these is proper also, in Composition with Cerate.

The following are good Remedies:

Take of the dried Root of Alkanet, pulverized, four Ounces, white Wax nine Ounces, Oil of Roses eighteen Ounces; mix them. Or, prepare Cerus, with a moderate Quantity of Stags Marrow. *P. Aegineta, Lib. 4. Cap. 11.*

A Cerate for Burnings and Erysipelas is prepared of four Ounces of white Wax, three Ounces of Oil of Roses, and four Ounces of Pellitory of the Wall. After the Inflammation is gone, or, if it continues long, before the Part becomes livid, apply a Cataplasim of crude Barley-meal. If the Place be turn'd livid, let it be scarified, and the Cataplasim the longer used, and the Part washed with fresh Water, and sometimes with Sea Water, and Brine; and these may be sometimes mixed with the Cataplasim. *Idem, Lib. 4. Cap. 21.*

Whenever this Misfortune happens make no Delay, but take the first Earth that comes to Hand, and apply it moistened with Water, and afterwards wash the Place with warm Posca; then take Verdigrise, and Spuma Argenti, of each an equal Quantity, bruised, with Wine and Oil, and anoint the Part with a Feather, not touching it with your Hand, but laying over it a Piece of fine Linen Cloth. If Blisters arise, break them in the Beginning; but if they have been suffered to harden, break them, and apply a Cerate. For this Purpose, the following Pustil may be prepared, and reserved for Use on Occasion:

Take of Alum four Drams, Frankincense two Drams; bruise them, and make them up with Water into Pustils: Or, take of white Lumberstone two Ounces, Bark of Frankincense, burnt Misy, each six Drams; make them up as the foregoing, and use them both with Posca. If Blisters arise, apply Sumach and Polenta, bruised in Vinegar, or Hog's Gall boiled; or anoint the Place every Day with the Juice of Henbane, and the Blisters will wither away. If the Part be excoriated, and ulcerated, apply the Leaves of Beet, boiled in Wine and bruised, or infill the Juice of Beet into liquid Cerate of Oil of Roses, as much as it will imbibe: The just Proportions are, three Parts of Oil to one of Wax, and as much Juice as is sufficient. Use this, and you will admire the Effects.

The following speedily cicatrizes the Sore:

Take of Cerus, Spuma Argenti, Barley burnt and bruised, each one Ounce; Wax four Ounces, Oil of Roses, or Oil of Myrtle, nine Ounces; mix the Barley with the liquid Cerate, and add thereto the Spuma Argenti, and Cerus, bruised in a Mortar with Wine. *Aetius, Tetrab. 4. Serm. 2. Cap. 64.*

To make Hair grow on the burnt Place,

Roast Fig-leaves in an earthen Pot, and apply them with Cerate, in the manner of a Plaster. *Aetuar. de Meth. Med. Lib. 6. Cap. 8.*

It may not be thought improper, that we account Burns, or Ambustion, a kind of Inflammation; for not only the same Signs and Symptoms, but generally the same Events, attend on both. We call that Hurt which the Body receives, either from Fire itself, or from Bodies put in a violent Heat and Effervescence by the Fire, *Ambustion*, *Ustion*, or *Adustion*; so that among the Causes of Ambustion, we are to reckon not only Fire itself, but every heated Body, as well hard Bodies, for Instance, glowing Coals, hot Iron, or other Metals, heated and liquified by the Fire, as Gunpowder, and fervid Liquids, such as hot Water, Beer, Wine, Oil, Spirit of Wine, and the like.

As soon, then, as any thing of this Nature is applied to the Body, there follows of necessity a Corrugation and Rupture of the Fibres and little Veins, with an Effusion of the Blood and Humours into the adjacent Parts, where they stagnate and corrupt. But as Ambustions, caused by solid Bodies, are almost constantly more grievous than what are received from Liquids; so the Mischief is universally proportioned to the Degree of Vehemence of the Combustion, just as it is in all Inflammations.

Now Burns may, not improperly, be divided into four Kinds: The first and least seems to be, when the Part affected feels a Pain attended with Heat and Redness, and succeeded in a short time by a Pustule. The next Degree is, when, after Ambustion, there is an immediate Eruption of Pustules, with a grievous Pain. The third Degree is, when the Skin and sub-jacent Fat are burnt in such a manner, that they presently turn to a Crust. The last is, when the Ambustion is so vehement, that it penetrates and destroys almost every thing before it, to the very Bone. The third Degree resembles a Gangrene, the last

last a Sphacelus: Whence it also appears, that Ambustions very much resemble Inflammations, and are known, in their respective Degrees, by nearly the same Signs.

The Event of Ambustions depends partly on the Degree, partly on the Use and Excellency of the Part affected. For the more grievous the Ambustion, or the more noble the suffering Part, the more is the Danger to be apprehended. Therefore it is thought a lighter Evil, if the Hand or a Finger contract a Pustule from a Scald by Fire, than if the Eye be thus affected, tho' in a slighter manner; for so tender and noble a Part of the Body can hardly bear Ambustion, without Danger of losing the Sight. We are, besides, to estimate the Mischief by the Inveteracy and Extent of the Ambustion; for the deeper the Fire has penetrated the Body, or any Part of it, or the wider its Compass, the greater is the Evil to be accounted. Thus when the whole Body has, tho' but slightly, felt the Flame of a Fire, or of Gunpowder, or boiling Liquor, it is a very bad Misfortune; for the miserable Patients being unable to sit, or lie, or sleep, by reason of their most acute and intolerable Pains, a Weakness must necessarily come on, with a febrile Disorder, succeeded at last by a Sphacelus, which terminates in Death; and this so fatal an Event is rather to be expected in Infants than Adults; for the first are destitute of Strength and Patience, as well as Sagacity to chuse the most commodious Situation. Moreover, the deeper the Ambustion reaches, the more threatening is the Danger. Ambustions of the Face are very much to be dreaded, not only on account of Deformity by Eschars, but principally as they often cause the Eyelids to grow together. If the Neck happens to be burnt, the Patient is almost sure to come off wry-necked, without convenient Assistance. As to other Ambustions, it will be easy to pass a Judgment on them from what has been said, after thoroughly considering the Nature of the affected Parts.

As an Ambustion is not unlike an Inflammation, with respect to Degrees, so the Method of Cure in both is much the same. When there happens a slight Ambustion, or one of the first Degree, the most proper Medicines, on all accounts, are Resolvents; of which there are two Kinds principally to be observed, the *astringent*, and the *emollient*. Mild Astringents are, Spirit of Wine, either the common Sort, if good, or rectified, or also camphorated; let the Part affected be immersed in this Spirit, or be carefully fomented with Linen Cloths, wet therein. This is much recommended by Sydenham.

Of almost the same Efficacy are Vinegar lithargirised, and Brine of pickled Cabbage, or Oxycras boiled with Salt, and used warm in the same manner as Spirit of Wine, before directed. Oil of Turpentine also is to be had in Readiness, with which the Part is to be timely and frequently anointed. In short, it would not be improper, in such a Case, to hold the burnt Part, suppose a Hand, or a Finger, to the Flame of a Candle, or to the Fire, and to keep it as near, and as long, as the Pain can be suffered; or alternately to present and remove it, till the Sense of the Pain and Heat be remitted. For by this means not only the stagnating Blood, by the mere Vehemence of the Fire, is reduced to its former State, but also Pustules, and other grievous Symptoms, are very seasonably prevented; and so the first Degree of Ambustion is, for the most part, with no great Difficulty, healed; especially if the Medicines above advised are, at the same time, applied.

Contrary almost to this, but equally proper and efficacious, is the Method of Cure by *Emollients*. By this means whatever is contracted, or corrugated, among the smaller Veins and Fibres, is mollified, and consequently the natural and free Circulation of the Blood through the same is restored, and thereby those grievous Symptoms, which might otherwise have happened, are prevented. Water of a moderate Degree of Heat, and accommodated to the Sensation of the afflicted Part, is of no small Service in this Case, by dipping a folded Linen Cloth therein, and applying it to the Place, and now-and-then moistening it afresh, till the Sensation of the Heat and Pain wears off by Degrees; but this warm Water uses to be more effectual when boiled with Marsh-mallows, or Mallows, or Mullein, Linseed, Fenugreek, Seeds of Quinces, and other such emollient Medicines. After this, some of the most proper emollient Cataplasms, which are either prepared with the before-mentioned Herbs, or made up of any other common Pulp, are to be provided, and frequently applied as hot as the Patient can bear; for most Pulp have a mollifying Virtue. Besides these, there are emollient Oils (*a*) of known and sufficient Virtue; such as Oil of Linseed, Oil of sweet Almonds, of Olives, of white Lilies, of Henbane, and others of the like Kind. These are spread upon Linen, and so applied; or by frequently anointing the Place by means of a Feather, when they grow dry. And, lastly, we must not omit taking Notice of *Mynsicht's* Ointment for Ambustions, which is an excellent Lenitive, and prepared of the Oil of Olives, or Linseed, mixed with the White of an Egg, and applied in the same manner as the rest; the Mucilage of Quinces is very good also in this Case. But it is to be observ'd, once for all, with respect to the Medicines hitherto pre-

scribed, that they are of little or no Service, unless frequently renewed: And if the Burn happens to be in the Face, it will be convenient to wear a Sort of Linen Mask, well fitted, for the more commodious Application and Retention of the Medicines upon the Part, and to keep it always moist. If the Misfortune happens in the Neck, to prevent a Wryness, you must have recourse, by way of Precaution, to a peculiar Sort of Bandage, called by the Surgeons *FASCIA DIVIDENS*. See *FASCIA*.

In the second Degree of Ambustion, which is attended with a Blister, it seems improper to open the Vessels, or cut the Skin already lacerated, because of the vehement Pain to which it usually puts the Patient: But the best way, in these Cases, for the most part, is, with all the Haste possible, to apply one or other of the before-mentioned Medicines, which of them comes first to Hand, as warm Water, burnt Wine, or Spirit of Wine, and to be very frequently renewing of the same. For by this means not only the Heat and the Pain are mitigated, but the Skin, tho' separated from the Cuticula, or Scart-skin, is preserved almost without any Blemish. If the Pain continues, lenitive Remedies are to be used: Here the most celebrated Topics are Oil of Linseed, *Mynsicht's* Ointment for Ambustions, Unguentum Nutritum, Ointment of Litharge, or Diapompholyx; with these you must very often anoint the Place, or spread them on Linen, and bind them to the Part affected. As the Pain and Heat gradually decrease, some proper Plaster, as that of red Lead, ought to be applied, in order to smooth the Skin, and restore the Cuticula. If this second Degree of Ambustion be more intense than ordinary, and affects a great Part of the Body, it will be necessary forthwith to take away some Blood, in proportion to the Measure of the Ambustion, even till the Patient faints, in order to prevent Exulcerations, Deformities by Seams, and perhaps a Gangrene; after which a strong Cathartic must be administered. Outward Topics are such as have been already prescribed: For Infants, where Bleeding is not so convenient, Purging must be iterated, for the sake of Revulsion. As to the rest, a very strict Regimen of Diet is to be observed in Ambustions, as well as in other painful or dangerous Wounds and Inflammations; wherefore the thinnest and smallest Drinks, and sobble Liquors, are highly proper in such a Case; for whatever is heating, or taken to Intemperance, has very pernicious Effects, as it increases the Pain and Heat. The celebrated *Digby* thought nothing more effectual in allwaging the Heat arising from Ambustion, than Spirit of Salt, taken to the Quantity of ten or fifteen Drops, either alone, or instilled in some Liquor. All these Things being readily and carefully provided and administered, as before directed, it is surprising with what Success the affected Parts are comforted, cherished, and restored, and all the mischievous and threatening Consequences avoided.

As to the third Degree of Ambustion, in which a Crust or Eschar immediately overspreads the burnt Part, it can hardly, or rather not at all, be cured without a Suppuration. If the Misfortune happens to the Face, our principal Care and Concern should be to preserve that Part from unseemly Blemishes remaining after the Cure. In this Circumstance, therefore, we are to avoid almost all Kinds of Ointments and Plaisters, however they come recommended as the rarest Secrets, and the most powerful Medicines for Ambustions. For it is to be fear'd, that, while they dry the Wound more than is requisite, they should contract the Skin and Fibres, and by that means induce a very deforming, or, at least, an unseemly Eschar. Wherefore there is nothing for which we should be more careful, than, with all the Speed we can, to remove that corrupt Crust, and the Matter included under it; but how to effect this, in the most commodious way, is a difficult Point to hit. To tear them off by Violence with the Hands, or cut them away, is far from being beneficial to the poor Patient: But if there be any Remedies at all, which are qualified to work a happy Cure upon an Ambustion, there are none, within the Compass of my Observation, that are more proper for the Purpose than such as are composed of Emollients. Whatever therefore of this kind, among those we have advised, can soonest be got ready, is to be spread upon folded Linen, and applied hot to the Place, and very often renewed, till the hard Crust, loosening by Degrees, be at length severed from the quick Flesh. If any thing be separated, and lie loose, it must be removed and taken off by the Volsella, as often as the Place is dressed, which must be two or three times a Day, and the remaining Part of the Crust must be anointed with Butter: Fomentations also are, upon no Account, to be omitted. This Part of the Cure takes up two, and sometimes three or four Days. All the Crust being resolv'd in the manner prescribed, our next Care is to cleanse and agglutinate the Wound. The first Intention is answered by some mild digestive Ointment, together with Honey of Roses; and the agglutinative Part is performed by the Ointment of Diapompholyx, or of Litharge, or the Emplastrum ad Ambusta, which are the most common and celebrated Medicines for this Purpose. But if any Plaisters, or Ointments, are applied upon pretty

(a) Pliny, lib. 23 Cap. 4. recommends Oil of Myrtle for Ambustions.

pretty hard Crusts, it is very much to be feared, that, by reason of the Constriction of the adjacent Parts, and an Exasperation occasioned by the Acrimony of the Matter, or Sanies, some considerable and deforming Eschar will remain. However, if any Person shall undertake the Cure after this Method, which is the common way of Surgeons, he ought to be advised, that, except the Crust shall fall off the second or third Day, he is to make frequent Incisions in it, as in Gangrenes, in order to let out the Matter that lies under it; and, after Bleeding and Purg- ing, which are necessary in the first Place, the Fomentations before recommended, are to be carefully used, in order to mel- tify and totally resolve the Crust. An exact Regimen of Diet is found to be more necessary in this than in the former Method of Cure. To restore the Skin to its pristine State, there is no Remedy to be compared with frequently fomenting the Part affected, as it grows well, with the Steam of hot Water. If the Restoration of the Skin goes on but slowly, it will not be amiss to promote the same by the Application of Wax, and the Oil of Eggs.

As to the fourth, which is the highest and most desperate De- gree of Combustion, where the Burning has penetrated to such a Depth as to corrupt and mortify all before it, almost to the very Bone, all Remedies are vain and useless; and there is no way left to assist the Patient, but by speedily cutting off the affected Limb, as is done in a Sphacelus. *Heijler, Lib. 4. Cap. 15.*

The following Method of curing Burns is recommended in the *Philosophical Transactions*.

I can affirm, that in all Burnings, by Fire or otherwise, and the Pains occasioned thereby, I have not yet met with any bet- ter and surer Medicine than this following:

Take Spirit of Earth-worms, with rectified Spirit of Wine, twelve Ounces, mixed with two Ounces of Camphire.

No sooner is a Bandage, or Compress, dipped into this Spirit, applied to the affected Part, but it will give instant Relief, and so effectually check the Inflammation, that it will creep no far- ther: But the Application of it must be continued till the Pain is quite gone, and the Ulcer, if there hath been any, is dried up. If the Exulceration is got deeper, and the Wound must be kept open, two Ounces of Camphire, dissolved in Oil of St. John's-wort, mixed with a Pound of the common Unguentum Cerause, applied according to Art, will quickly and effectually heal it, as I have often experienced.

There are, in the *History of the Royal Academy of Sciences*, two remarkable Instances of Cures performed by accidental Burns, which must not be omitted.

Of Cures performed by Burning.

CASE I.

Some violent Pains of the Head have been suddenly and un- expectedly cured. A Lady of thirty-five Years of Age, and of a good Constitution, laboured under a continual Head-ach, and was seized with severer Paroxysms, which returned regularly once in eight or ten Days, and lasted ten or twelve Hours with such Violence, that she sometimes appeared stupid, and some- times furious. The Seat of her Pain was principally in her Forehead, and her Eyes, which were now become very red and sparkling. Her grand Paroxysms were accompanied with a Nausea, and terminated by vomiting up a viscid Matter, white, soft, and insipid, which, in the very Conclusion of the Fit, was followed by a green, but very bitter Water. During the Paroxysms she could eat nothing, but had a very good Appetite at other times; and had not lost her natural good Plight of Body, notwithstanding the long Continuance of her Indisposi- tion.

Mr. *Homberg*, in vain, prescribed a vast Quantity of Medi- cines for three Years successively. Opium was the only one which could, for a few Hours, relieve her ordinary Head-ach; but her Paroxysms were entirely Proof against its Virtues.

One Night, when she felt a Fit coming upon her, and was going to Bed, she had an Inclination, before she lay down, to see whether her Eyes were much inflamed or not. Accord- ingly as she was looking at herself in a little Pocket Looking- glass, the Flame of a Wax-candle, which stood by her, set Fire to her Night Head-dress, which was made of pretty thick Cloth; being all alone, and not adverting to what had hap- pened, the Fire burnt all her Forehead, and a Part of the Crown of her Head, before she could call People to extinguish it. Mr. *Homberg*, who was forthwith called, ordered some Blood to be instantly taken from her, and treated the Burn in the ordinary manner, the Pain of which ceased in a few Hours: But the Paroxysm, which was expected, did not seize her; even the ordinary Pain of her Head disappeared almost from that very Moment, without the Help of any other Medicine than the Burning; and ever since that Accident happened, which is now about four Years, the Lady has enjoy'd a perfect State of Health.

CASE II.

A Physician of *Bruges* has communicated to Mr. *Homberg* a Case of the like Nature, of which he himself was a Witness. A Woman who, for many Years, had her Legs and Thighs extraordinarily swelled, and very painful, found Ease by rub- bing them with Brandy before a Fire, every Night and Morn- ing: One Evening the Fire accidentally caught the Brandy, with which she had rubbed the Parts affected, and burnt her very superficially; upon which she applied some Ointment to the Burn, and all the Waters, which distended her Legs and Thighs, discharging themselves by Urine in the Night-time, the Swelling returned no more. 'Tis great Pity that Chance should not more frequently act the Part of a Physician (and I may add, still a greater, that Physicians will not attend to the Lessons taught them by Chance). Accident has, undoubtedly, taught this Sort of Remedy to many barbarous Nations, who use it with Success; and, perhaps, the rather, that being severe, it affords them an Opportunity of shewing their Courage. Mr. *Homberg*, who was born in the Island of *Java*, says, he remem- bers that when the *Javans* were afflicted with a certain Colic, or painful Flux of the Belly, which ordinarily proved mortal, they used sometimes to cure themselves by burning the Soles of their Feet with hot Irons. If they have a *Panaris*, which is a Species of Paronychia, a Disease incident to the Fingers, they cure them- selves by soaking the Finger affected in boiling Water several times, and letting it remain in the Water for an Instant only at each Immersion; and Mr. *Homberg* himself, following in some Cases the Customs of his native Country, cured himself of a *Panaris* in this very manner. In the Relations of Travellers, we have Accounts of a great many Maladies which the Savages cure by Burning; and, without going so far, we ourselves apply this Remedy to Horses, Hounds, and Birds of Prey, &c. But it must be owned, our Delicacy will not allow us to use it on ourselves, which is perhaps the Reason why we labour under lasting Disorders, which, by this means, might become very short.

The Delicacy of the *Europeans* could not long permit them to use that kind of Down, brought by the *Spaniards* from *Ame- rica*, which cured the Gout when burnt on the Part affected. Mr. *Homberg*, nevertheless, saw a Burgess of *Amsterdam*, who, by the Use of this Medicine, freed himself of a Fit of the Gout in seven or eight Days, which used to last two or three Months, and the Returns of his Paroxysms were rendered less frequent.

Mr. *Homberg* thinks, that Burns may perform Cures in three different manners; either by putting the peccant Humours into a quicker Motion, which makes them fly off through new Roads; or by rendering them more fluid, which, in Effect, is the same with the former; or, thirdly and lastly, by destroying a Part of the Canals which bring the Humours, in too great Abundance, to the Part affected. *Hist. de l'Academie Royale des Sciences, An. 1708.*

AMEDANUS. The *Alnus vulgaris* is thus called by *Crescentius*.

AMELANCHIER, a Name for a sort of Bilberry, call'd by *Parkinson*, *Vitis Idea tertia Classi*. THE FRENCH HONEY SWEET WHORTS. See VACCINIUM.

AMELEUS: This is the Name of an Herb which takes its Name from the River *Mella* in *France*, on the Banks of which it grows in great Plenty.

Virgil numbers this amongst the Plants which are very agree- able to Bees. *Georg. 4.*

*Est etiam flos in pratis, cui nomen Amello
Fecere agricolæ, facilis querentibus herba.
Namque uno ingentem tollit de cespite sylvam
Aureus ipse: Sed in foliis, quæ plurima circum
Funduntur, violæ subluet purpura nigra.
Sæpe Deum nexis ornata torquibus arc.
Asper in ore sapor: Tonsis in vallibus illum
Pastores, & curva legunt præpe flumina Mellæ.
Hujus odorato radices incipue Baccho,
Pabulaque in foribus plenis appone canistris.*

Some Botanists say, it is the *Caliba Polystris*. Others, that it is a Species of the *CONYZA*, or of the *ASTER MONTANUS*. According to *Dale*, it should be the *Aster Atticus*.

AMELPODI, a Name given to four different Trees, which grow in the *Indies*.

The first is the *Amelpodi*, H. M. or *Arbor Indica* ἀναρτος, floribus umbellatis tetrapetalis.

The Root of this is esteem'd by the Inhabitants of *Cande- nate* where it grows, to be an Antidote against the Bites of Ser- pents, if worn about them.

The second is the *Belutta Amelpodi*, or *Frutex Indica* ἀναρτος, foliis binis adversis, floribus pentapetalis candidis, unguibus luteis.

The Root of this, bruis'd, and taken with Water, is good against the Bites of Serpents; and is esteem'd a good Topic in the Gout.

The third is the *Sjouanna Amelpodi*, or *Frutex Indicus Pentapetalos*, gemina Bacca, Calyce excepta.

The Root of this is recommended against the Bites of Serpents and Scorpions.

The fourth is the *Karetta Amelpodi*, or *Baccifera Indica floribus umbellatis*, Fructu rotundo tricoeco.

A Decoction of the Leaves of this Tree are esteem'd a Remedy for the Colic.

The Root, if only worn in a Purse, is said to be an Antidote against the Bites of Serpents.

From the Leaves and Roots boil'd in Oil of Olives, a Lintment is prepar'd, which is said to be excellent for resolving large Tumours. *Raii Hist. Plant.*

AMENE, common Salt. *Rulandus.*

AMENENOS, ἀμενεός, from α Negative, and μέν Strength, weak, feeble. It is frequently us'd by Hippocrates in this Sense.

AMENTIA, Madness. See MANIA and DELIRIUM.

AMENTUM, Scissile Alum. *Rulandus.*

AMERI, Indigo. See AKIL.

AMETHODICUM, Immethodical. *Blancard.*

AMETHYSTA PHARMACA, ἀμύστα φάρμακα; from α Negative, and μέν, Wine. Medicines which either prevent, or take away, the inebriating Effects of Wine. *Galen de Compositione Pharm. L. 2.*

AMETHYSTUS; a precious Stone; thus distinguish'd:

Amythylus, Offic. *Kentm.* 48. *Boet.* 162. *Charlt. Foss.* 35. *Worm.* 99. *De Laet.* 24. *Aldrov. Mus. Metall.* 966. *Schw.* 362. *Calc. Mus.* 189. *Geoff. Prælect.* 84. *Mont. Exot.* 14. THE AMETHYST.

It is a precious Stone, of a violet Colour, which arises from a Mixture of red and azure; and it is found in *India*, *Arabia*, *Armenia*. *Dale.*

A hard, beautiful, shining, transparent, precious Stone, of which there are several Species; some are white, others red, others of a violet Colour: It comes from the *Indies*. 'Tis pretended, that it prevents Drunkenness, being worn on the Finger, or bruised and drank in Powder; but this Virtue is only imaginary. However, hence it receives its Name. See AMETHYSTA.

It is good to stop a Looseness, and to absorb the acid Particles when too much abounding in the Stomach, which Virtue it has in common with other alkaline Substances.

Geoffroy adds, that the Chymists have endeavoured to extract Tinctures from these coloured Gems; but it is not certain whether ever they succeeded; or if they did, what the Use of these Tinctures is. *Geoffroy.*

AMETRIA; ἀμετρία, among the *Greek* Physicians, was used in the same Sense with the *Latin* Words *Immoderantia*, and *Immoderatio*. It is in general a Receding in any Degree from a due Temperament. *Galen.*

AMIA, the Name of a Fish, reckon'd by *Actius* among such as are of a hard Flesh. *Actius, Tetr. 1. Serm. 2.*

Pliny says, it grows so fast, that you may perceive it every Day. *Nat. Hist. Lib. 9. Cap. 13.*

AMIANTUS

Offic. Boet. 382. *Gesn. de Lap. f. 6.* *Aldrov. Mus. Metall.* 657. *Amiantus*, *Worm.* 55. *Calc. Mus.* 286. *Schrod.* 346. *Charlt. Foss.* 23. *Lapis Amiantus*, *Matth.* 1387. *Laet.* 118. *Amiantus*, five *Asbestus*, *Ind. Med.* 8. EARTH-FLAX. *Dale.*

The Amiantus Lapis is generated in *Cyprus*, and is a Stone like Scissile Alum. As it may be drawn into Threads fit to be woven, they work it into Cloth, only fit for Show, which, cast into the Fire, takes indeed the Flame; but instead of being consumed, comes out the purer and brighter. *Dioscorides, Lib. 5. Cap. 156.*

It is used as an Ingredient in Psilothra, [Medicines to take off Hair] *Paul. Aeginet. Lib. 6. Cap. 3.* And *Myrepsus* makes it enter the Composition of his Citron-ointment for Blemishes of the Skin. *Sell. 3. De Unguentis, Cap. 42.*

It is believed to be effectual against all manner of Witchcraft, especially such as proceeds from Women. *Schroder in Dale.*

Pliny says it has a particular Prevalence against the Sorceries of Magicians. *Lib. 36. Cap. 19.*

It is also said to resist Poisons, and to cure the Itch.

The Nature of the Amiantus will appear from the following Dissertations, collected in the Abridgment of the Philosophical Transactions.

Signior *Marco Antonio Castagna*, Superintendant of some Mines in *Italy*, hath lighted, in one of them, upon a great Quantity of that lanuginous Stone called *Amiantus*, which he knows so to prepare, as to render it like either to a very white Skin, or to a very white Paper, both which resist the most violent Fire. The Skin was covered with kindled Coals, whence it took Flame; but being taken out, after it had been left there a while, the fiery Colour presently disappeared, and

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it became cold and white again as before; the Fire, it seems, passing only through, without wasting or altering any thing of it; whereas some of the hardest and solidest Metals, as Iron and Copper, reduced to very thin Plates, and kept as long in the Fire as this Substance was, would cast Scales. Again, this Skin, being made as thin as Paper, doth not only yield that antient and so much admired *Amiantus*, but is also perfecter than that which comes from *Cyprus*, and not inferior to that which sometimes, though but seldom, comes out of *China*. This Paper was also try'd in the Fire, and there it remain'd likewise without any visible Detriment, or without the least Change of its first Whiteness, Fineness, or Softness. Of the same Matter this Artist hath wrought a Wick, never to be consumed as long as 'tis fed, nor altering its Quality after the Aliment is wasted away.

The *Lapis Amiantus*, or *Linum Fossile Asbestinum*, is found in no small Quantity in *Linn-Fairynge Harney*, in the Northern Part of *Anglesey*, where it runs in Veins through a thick Stone, in Hardness and Colour not unlike Flint. These Veins are generally a Quarter of an Inch deep, which is the Length of the *Amiantus*, and is seldom longer, but often shorter. It is composed of a lanuginous Matter, exactly resembling that of pappous Plants; but so closely compact, that till you draw a Pin, or any such sharp thing, cross the Grain of it, it appears only a shining Stone, there being not the least Filament of Lint to be perceived in it. In its natural Form, some of it looks whitish, and some straw-coloured, but all shining; but if pounded in a Mortar, the Brightness disappears, and the Whole becomes whitish. Note, that above and beneath the Veins there is a very thin Septum of terrene Matter, betwixt the *Amiantus* and the Stone whereto it adheres. I put a small Quantity of the Lint in the Fire, which grew red-hot; but tho' it remained there a Quarter of an Hour, I could not perceive that it was any thing consumed. I twisted also some of it in the Form of a Wick, and dipping it in Oil, it gave as good a Flame as other Wicks, till the Oil was consumed, the Wick remaining of the same Proportion as at first. Being satisfied it was incombustible, I pounded some Quantity of it in a stone Mortar, till it became a downy Substance; then I sifted it thro' a fine Searce, by which means the terrene Parts (being reduced to a Powder) came thro' the Searce, the *Linum* remaining. I then brought it to a Paper-mill, and putting it in Water, in a Vessel just capacious enough to make Paper with such a Quantity, I stirred it pretty much, and desired the Workmen to proceed with it in their usual Method of making Paper, with their Writing-paper Mould, only to stir it about ever before they put their Mould in, considering it as a far more ponderous Substance than that they used; and that consequently, if not immediately taken up after it was agitated, it would subside. Paper thus made of it, proved but very coarse, and too apt to tear. But this being the first Trial, I have some reason to believe it may be much improved.

I here send you the Account of the incombustible Linen-cloth, which I received from one *Conco*, a natural *Chinese*, resident in the City of *Batavia*, in the North-east Parts of *India*, who by means of *Keayavarr Sukradana*, (likewise a *Chinese*, and formerly chief Customer to the old Sultan of *Bantam*) did, after several Years Diligence, procure from a great Manderin in *Languin*, (a Province of *China*) near three Quarters of a Yard of the said Cloth; and declared, that he was credibly informed, that the Princes of *Tartary*, and others adjoining to them, did use it in burning their Dead; and that it was said, and believed by them, to be made of the under Part of the Root of a Tree growing in the Province of *Sutan*, and was supposed, in like manner, to be made of the Toddle-trees in *India*; and that of the upper Part of the said Root near the Surface of the Ground, was made a finer Sort, which, in three or four times burning, I have seen diminish almost half. They report also, that out of the said Tree there distils a Liquor, which not consuming, is used with a Wick made of the same Materials with the Cloths, to burn in their Temples to Posterity.

A Handkerchief, or Pattern of this incombustible Linen, which was shewn the *Royal Society*, was a Foot long, and just half a Foot broad.

There were two Proofs of its resisting Fire given at *London*, one before some of the Members of the *Royal Society* privately, Aug. 20. 1684. when Oil was permitted to be poured on it whilst red hot, to enforce the Violence of the Fire. Before it was put into the Fire this first Trial, it weighed one Ounce six Drains sixteen Grains; and lost in the Burning two Drains five Grains.

The second Experiment of it was public before the *Society*, November 12. following, when it weighed (as appears by the Journal of the *Society*) before it was put into the Fire, one Ounce three Drains eighteen Grains. Being put into a clean Charcoal-fire, it was permitted to continue red hot in it for several Minutes: When taken out, though red hot, it did not consume a Piece of white Paper, on which it was laid. It was

X x x x

presently

presently cool; and upon weighing it again, was found to have lost one Dram six Grains.

December 3. Mr. Arthur Baily, one of the Fellows of the Royal Society, presented them with a Piece of this Linen, in the Name of Mr. Waite. At the same time, the same Mr. Baily presented Dr. Plot with another Piece of it, which being brought to Oxford, the Experiment was again repeated on it, December 16. it being put into a strong Charcoal-fire, in the Natural History School, in a full Meeting of the Philosophical Society of that University; where after it had continued red-hot for some considerable Time, it was taken forth again little altered when cold, saving that it seemed a little whiter and cleaner than before.

This kind of Linen-cloth was esteemed by the Antients, though then more common, and perhaps better known, than 'tis yet amongst us, equally precious with the best of Pearls.

Nor is it now of mean Value even in the Country where made, a China Cove (that is a Piece twenty-three Inches and three Quarters long) being worth eighty Tale, that is thirty-six Pounds thirteen Shillings and Four-pence.

The Reality of such a Being has been doubted or deny'd by very good Authors; who, though they owned such a Mineral as *Amianthus*, out of the woolly Part whereof this sort of Linen was always antiently said to be made, yet questioned the Possibility of its having been actually done. But *Pliny* says expressly, (and I dare believe him in any thing he speaks of his own Knowledge) that he himself had seen Napkins thereof, which being taken foul from the Board at a great Feast, were cast into the Fire; by which means they were better scoured, and looked fairer and cleaner, than if they had been wash'd in Water.

And besides the Testimony of several curious Persons in all Ages, we have now seen a Piece of this Linen pass the fiery Trial both at London and Oxford.

This lanuginous Mineral is called from its strange Qualities, sometimes *Amianthus*, quod in Ignem injectus non mutatur; the Fire being so far from defiling it, that it rather gives it a Lustre.

It is called *Asbestos*. And,

Salamandra; in English, Salamander's Wool. I suppose from the *Thryalides*, or Candle-wicks, said to be antiently made of it, which being put into Lamps of inconsumable Oil, would never waste, or go out; which I take to be the true Reason of the Imposition of these Names upon it, whether there ever were any such Lamps or not.

From a pungent Quality, *Agricola* says, it has on the Tongue without Alstringency, it is called *Alumen*, having the distinguishing Epithet *Plumeum* added to it, taken from its downy Filaments, to discriminate it from all the rest of the Alums. This is however a Mistake; for the *Alumen Plumeum* is a very different thing.

From the light-grey Colour of its lanuginous Parts it is called by some *Polia*; by others *Corsides*; and, from its Likeness to the hoary Fibres of some sort of Matweed, *Spartapelia*.

From the Capacity it has of being spun into Thread, it is also called *Linum*, with some distinguishing Epithet taken either from its Quality, such as *Asbestinum*, or *Vivum*; or from the Place where found in general or particular: It being called in general *Linum Possile*; in English, Earth-flax; and in particular, *Linum Indicum*, *Creticum*, *Cyprium*, and *Carpasium*, or *Corythium*. But beside the Places that have given these Epithets to it, it is also found in *Tartary*, at *Namur* in the *Low-Countries*, at *Risfield* in *Thuringia*, amongst the Mines in the old *Noricum*, somewhere in *Egypt*, and in the Mountains of *Acadia*; also at *Puteoli*, and lately in some other Mines in *Italy*; and it has been yet latelier met with in a small Island, and belonging to *William Robinson*, Esq; called *Ynis Molroiniad*, that is, the Island of Sea-Cabers, in the Parish of *Llan-Fairing Hornoy* in *Anglesea* in *Wales*.

It is commonly by the *Lithographers* reckoned among Stones; but I rather should judge it a *Terra Lapidosa*, or middle Substance between a Stone and an Earth. But whether the one or the other, it is made of a Mixture (I guess) of some Salt or other, a pure Earth without Sulphur, coagulated in the Winter, and hardened to Perfection by the Heats in Summer; which Salt *Johannes Hessler* proves by a very cogent Argument to be *Alumen Liquidum*, describing it, as *Matthioli* also does, to be of a whitish lacteous Substance, somewhat inclining to yellow, that sweats out of the Earth, and smells like rotten Cheese; whereof having gathered a Quantity at *Puteoli*, together with the other Species of *Alum*, and kept it a while by him, when he came to look on it again, he found it to have lost the Smell, and a great Part of it changed into *Alumen Plumeum*, the saline Part, I suppose, shooting into Threads, and the pure Earth uniting them, as found in the Places where-ever generated, whether sweating from the Earth, as *Pliny* and *Matthioli* would have it, or percolated through Rocks, as we find it in *Wales*, the Veins of it there running through a Rock of Stone, in Flucture and Colour not unlike Flint, and

yet seems to be made of such *Alum*, as that of *John Hessler* at *Puteoli* was, some of it being straw-coloured, as if it still retained the Yellowness that his liquid *Bitumen* was said to have, which is a Colour not given to it by any Author, most of it being said to be white, or cineritious, some of it red, and some of an iron Colour, as *Agricola* tells us; and I have some of the *Cyprian* by me, sent from *Aleppo*, by Dr. *Robert Huntington*, whereof some is of a light-blue or pearl Colour, and some of it has a Cast of Sea-green.

But however the whole mineral Substances found at several Places may differ in Colour, yet I do not find but the woolly Part of them all seems to be much the same, viz. of a white silver Colour, the Threads very fine and slender, yet very ponderous, the smallest Particles of them thoroughly wet, sinking in Water, as I also found a very slender Thrum of the incom-bustible Linen given me by Mr. Baily, which Mr. Waite brought from *India*, would also do; which renders it very probable, that it is not a Vegetable, but a mineral-Substance, notwithstanding the Informations of *Conco* and *Keayarear Sukradana*, mentioned in Mr. Waite's Letter; I say, render it probable, there being several Woods, such as *Box*, *Red Wood*, *Persian Wood*, &c. that will sink in Water.

Marcus Paulus Venetus acquaints us, that it is found in *Tartary*, in a certain Mountain, in the Province of *Chinchintulas*, and made into Cloth, as he was informed, by one *Curscar*, a Turk, who was Superintendant of the Mines in that Country, after this manner: The lanuginous Mineral, or *Amianthus*, being first dried in the Sun, is next pounded in a brass Mortar, and the earthy Part separated from the woolly, which is afterwards washed from all Filth whatever, that may stick to it; so, being thus purged, is spun into Thread like other Wool, and after wove into Cloth, which, if foul or spotted, they cleanse, he says, by throwing it into the Fire for an Hour's time, whence it will come forth unhurt, as white as Snow: Which very Method (as *Strabo* describes it) seems also to have been used in ordering the *Cretan Amianthus*; only with this Addition, that after it was pounded, and the earthy Part shook from the woolly, he says it was combed, and so does *Agricola*, which argues there was some of a greater Length than any I have yet seen.

Of this Linen, as *Pliny* informs us, Shrouds were antiently used at the Royal Obsequies, to wrap up the Corps in, so that the Ashes of their Bodies might be preserved distinct from those of the Wood, which made the Funeral Pile: And the Princes of *Tartary*, as *Keayarear Sukradana* was credibly informed, (and I have it well confirm'd from other Hands) do use such at this Day for burning their Dead. It must be acknowledg'd, it must diminish every time it undergoes the Violence of the Fire; yet this hinders not, but it may and will do that Service divers times before it be render'd altogether useless. Some of the Antients are said to have made themselves Cloaths of it, particularly the *Brachmans* amongst the *Indians*. The Wicks for the perpetual Lamps of the Antients were also made of this Substance; and we are told, that *Septella*, Canon of *Adilan*, had Thread, Ropes, Net-works, and Paper, of it. *Marco Antonio Castagna*, who lately found this Mineral somewhere in *Italy*, knows how to prepare and render it tractable and soft, which he can thicken, and make thin, to what Degree he pleaseth, and maketh it thereby like either to a very white Skin, or a very white Paper. We have also made Paper of our Welsh *Amianthus* lately here at Oxford, which will both bear Fire and Ink well enough, the Ink only turning red by the Violence of the Fire.

Signior *Campani*, after some Account of the Name of the *Asbestos* Stone, mentions four Sorts, of which he has Specimens in his *Museum*. The first sent from *Corsica* or *Corfu*, long, of a woody Form, of half a Palm Length and more, of a whitish Colour, something inclining to a reddish. The second of a silverish lead Colour, softer, and shorter about three Inches; this was from *Sestri di Ponente* in *Liguria*. The third (which is the worst of all) is like Scales or *Laminae*, one upon another, (as he represents it like an Onion) of a blackish Earth-colour, with some white, black, and dark-red Veins interspersed, scarce two Parts of an Inch Roman long, therefore fitter for making of Paper, than spinning or weaving. The fourth Sort, given him by Signior *Boccone*, found in the *Pyreneans*, some whereof were a Roman Palm long; its Filaments, tho' longer, were yet thicker and rougher: He says also, That he heard of another sort in the *Volaterranean Mountains*. Next he tells us, He kept it for three Weeks in a Glass-house Fire, but found it unaltered; but it would not preserve a Stick wrapped in it from the Fire; whence he concludes the *Amianthus* loses nothing in the Fire, because it does not burn nor flame; but in the handling it wastes, though not much, as he found by an exact Balance. Lastly, He proceeds to shew the manner of spinning it, which he tried thus: First he laid the Stone in Water (if warm the better) for some time to soak; then it is opened and divided with the Hands, that the earthy Parts may fall out of it, which are whitish like Chalk, and hold the threadly Part together, this makes the Water thick and milky;

this is repeated six or seven times with fresh Water, where it is again opened and squeezed, till all the heterogeneous Parts are washed out, and then the flax-like Parts are collected, and laid in a Sieve to dry.

Of his four Sorts of *Amiantus*, he found that from *Corfica* best, being long and soft; and the *Cyprian* worst; where, by the way, he doubts whether his was of the best Sort, since the *Cyprian* was commended by *Pancirollus*, and others which he quotes. But to come more close to the way of spinning it, he first shews a Method discovered to him, which was thus: Lay the *Amiantus*, cleansed as before, between two Cards, such as they card Wool with; where let it be gently carded, and then clapt up in between the Cards fast upon a Table or Bench; take a small Reel, made with a little Hook at the End, and a Part to turn it by, so that it may easily be turned round; this Reel is to be wound over with fine Thread; then having a small Vessel of Oil ready, with which the Fore-finger and Thumb are constantly to be kept wet, both to preserve the Skin from the corrosive Quality of the Stone, and render the Filaments thereof more soft and pliant: Thus by twisting the Thread upon the Reel about; with the *Asbestos* hanging out of the Cards, some of it will be worked up together with it; by little and little, this Thread may with Care be woven into a coarse Sort of Cloth; and by putting it into the Fire, the Thread and Oil will be burnt away, and the incombustible Cloth remain. But finding this way of uniting the Stone with the Thread very tedious, instead of the Thread he put some Flax upon a Distaff; and by taking three or four Filaments of the *Asbestos*, and mixing them with the Flax, he found they might easily be twisted together; and the Thread thus made much more durable and strong; so that there is no Need of carding, which rather breaks the Filaments, than does any good: Open only, and separate the Filaments, after washing, upon a Table, and take them up with the Flax, which is sufficient. As to the making of Paper, he says, in the washing the Stone, there will remain several short Pieces in the Bottom of the Water; and of these, after the common Method, Paper may be made. He concludes with the best way of preserving the Cloth, or any other thing made of the Stone, when made; for by reason of its exceeding Dryness, it is very apt to break and waste; this is by keeping it always well oiled, which is the only Preservation for it; and when the Cloth is put in the Fire, the Oil burns off, and the Cloth comes out white and purified.

In the Ground of *Francis Gordon of Aftundore*, in the Shire of *Aberdeen*, near the *Highlands*, on the Side of a Hill of a Heath-kind of Ground, somewhat inclining to what we call Moss, in a very small Brook, and hard by it, in the Bounds of ten or twelve Yards, I found a great many of these Stones, some a Foot in Length, which appeared plainly like Wood; but because I could not perceive any Foot-steps of Wood thereabout, neither could any of them be found, except in that very Spot of Ground, I could not be persuaded they were petrified Wood. Then I went to cut up the Ground about the Place with my Knife, where I found likewise some Pieces of the Stone; and, very near the Surface, I got several Pieces of a fibrous Matter, which my Knife could not cut; this I immediately judged to be an incombustible Matter, as it proved afterwards, when I tried it by the Fire. And, because I thought it had been always esteemed certain Filaments that came off the *Lapis Amianthus*, I resolved to observe more narrowly the Production of it.

When I found some Pieces of the Stone very hard in the Middle, and the fibrous Matter on the Out-sides and Ends, I was inclined to believe, that the Flax came from the Stone; but then finding several Pieces of the Flax so condensed and pressed together, that, at first, they appeared to be hard Stones; but being a little wet, the Filaments were easily parted from one another; many more I got, some less, and some more, condensed into the Nature of a Stone; and all of it, both that which was condensed together, and what was not, was lying about an Inch within the Ground, parallel with the Surface, so interwoven with the Fibres of the Roots of the Grass, that it seemed to me much more probable to believe, that the Lint turned into the Stone, than the Stone into the Lint; especially seeing most Part of the Stones appeared so tender and brittle on the Outside, that it's hard to believe how they could turn into that tough Substance of Flax. The Stones are of different Sorts; some are white, the Colour of the Lint, and of a very soft Substance, so that they may be easily cut with a Knife without blunting it; others are much mixt with a whitish Tale; but most of them are of a greyish Colour, and very hard.

As for the Production of the Flax, I think it's hard to determine in this Place; because the greatest Quantity I found of it, was lying, as I said before, about an Inch at most within the Ground, parallel with the Surface, interwoven with the Roots of the Grass, without any Root of itself, but alike at both Ends, as if it were cut with a Knife. The Ground wherein it is found is of a greyish Colour, about one Inch or

two thick; under which there is a black Earth, for a Foot in Depth: So that I could find nothing, in the Places where most of it was got, that I could rationally conclude to produce it. But in some other Spots I found much of a talkish Sand, and some Pieces of Flax near to it; as also Pieces of the Stone much whiter than the rest, and very like Tale; which would incline one to believe, that it was produced of it: Yet there being no Appearance of any Tale in the other Places, where most of it was found, I can scarce conclude any thing about the Production of it.

But whatever way it is produced; though I have not examined what has been writ and said of that *Linum* by many, yet it seems to me, by what *Pliny*, *Aldrovandus*, and *Olaus Wormius* write concerning it, that this which I found in *Scotland*, is not inferior to any they speak of; for, generally, they make it very short; whereas some of this I found five, six, seven, and some eight Inches long.

As for the making of it into Cloth, they all conclude it very hard, which I confess is true; yet it may be seen, by the Experiment I have shewn, in making Yarn of it, that Cloth may be made of it also; for the Difficulty is much greater in one than the other.

A singular kind of Stone was dug out of a Quarry in the Highlands of *Scotland*, which, after the Rubbish, which lies not very deep, is done away, lies horizontally in a Bed endued with parallel Fibres, with few Interstices, soft at the Beginning, and easy to be smoothed and polished without any Tool, but rather with Sand, or another hard Stone of a bluish Colour, which afterwards hardens so, that it resists the Injuries of the Air, or Prejudice of Fire. When first the Quarrier began to dig it, he was at a mighty Loss; for endeavouring to cut and raise it, after the ordinary manner, with Wedges, and other usual Instruments, it broke and crumbled all to Pieces: But afterwards observing more narrowly the Duct of its Fibres, so to speak, he endeavoured to cut it with Spades lengthwise; and by this means he procured Stones as big as he had a mind, which smoothed very easily along the Tract of their Fibres; but when cut transverse, no Means nor Methods could render them smooth, but their Surface remain'd unequal as the Extremities of a Piece of Wood. Altho', as I said, this Quarry has but few Interstices, yet in those it has the true *Asbestos*, of a whitish silver Surface, consisting of several *Fasciculi* with parallel Fibres, like to those of the muscular Fibres of salted Beef, easily separable from each other, pure white, till it becomes so small as the finest Flax, and so ductile, that it may be spun into the finest Thread, whereof it were easy to make the incombustible Cloth, so famous for Shrines among the Antients. In other Places of those Interstices, was likewise to be observed a reddish Substance, near to the Colour of *Sanguis Draconis*; but whether fibrous or not, I cannot inform you, since the Gentleman could not shew me any of it; but added, he believed it might be good for Dying. I got a small Parcel of the *Asbestos* from him, and he told me, if he had known its Value, he could have preserved some Pounds of it. I am ready to think the second Kind was fibrous too, which might make a very beautiful Cloth, being striped with the other. This whole Quarry may be said to be *Asbestos* of different Colours, the bluish being of a much coarser, and the white and red of a finer Grain. *Phil. Trans. Abr. Vol. 5.*

AMICULUM, this was a kind of Covering used by the Boys for concealing their *Pudenda*, when going through their Exercises naked in the *Gymnasium*, or Place appointed for that Purpose, *Rhodius Dissert. de Aciæ*. It is also used in the same Sense with the Word AMNIOs, which see.

AMIDUM, the same as AMYLUM, which see.

AMINÆUM VINUM, Wine of *Aminæ*, called afterwards *Falerum*, in *Italy*. Polenta, prepared of roasted Barley, and drank in austere *Aminæan* Wine, is said by *Ætius*, to dry the Belly. *Teir. 1. Serm. 1.*

Among Wines, the *Aminæan* claims the Preference, on account of its Strength, and the Spirits and Generosity it acquires by Age. *Pliny Nat. Hist. Lib. 14. Cap. 2.*

Columella says, the *Aminæan* Vines were the most antient, that is, the first taken Notice of; and the *Italians* were probably first acquainted with these Vines; for *Italy* did not originally produce Vines; the Inhabitants were therefore obliged to transplant them from the Country of the *Amminei*, a People of *Thessaly*. According to *Macrobius*, the *Falerum* was antiently called *Aminæan* Wine; but it should rather seem, that the *Falerum* was of the Vintage of a particular Place; and that the *Aminæan* Wine was that made from the *Aminæan* Grape, in whatever Part of *Italy* it was produced; though the *Falerum* seems to have been made from this Sort of Grape, which the Soil of that Place might probably agree with better than any other. In Confirmation that the *Aminæan* Wine was not the Produce of any particular Place, but a Wine made of a particular Sort of Grape, it must be remark'd, that *Galen* takes Notice of *Aminæan* Wine, which was produced in *Náples*, in *Sicily*, and in *Tusany*.

It was the Character of the *Aminæan* Wine, that it was, when new, austere, acid, and rough, but that it improv'd prodigiously by Age; for, when old, it was remarkable for its Spirit, Strength, and Generosity; and consequently, it was then excellent in Imbecilities of the Stomach, as *Galen* observes.

Virgil distinguishes the *Aminæan* Wine from the *Falernum*, in the second *Georgic*:

-----*Quo te Carmine dicam,
Rhetica? Nec cellis ideo contende Falernis.
Sunt etiam Amminæ Vites, firmissima Vina.*

This Sort of Wine and Grape were by most of the *Latin* Writers called *Amminææ* and *Amminium*, as in *Virgil*, not *Aminææ* and *Aminæum*.

AMINÆUM ACETUM. *Rulandus*, and his Transcriber *Johnson*, seem to think this White-wine Vinegar; but it should rather be Vinegar made of the Wine described above, or strong Vinegar in general.

AMINIA, the Name by which the Natives of *Brazil* call the *Hylon Brasilianum* of *J. B.* and which the *Portuguese* call *ALGODON. Margrav.* It is a Species of Cotton-tree.

AMMA. See **HANMA**.

AMMI, Bishops-weed, of which there are two Sorts, the Modern, and the Antient. The Modern is thus distinguish'd:

Ammi vulgare, Offic. Ger. 881. Emac. 1036. Raii Hist. 1. 455. *Ammi vulgatus*, Park. Theat. 912. *Amni majus*, C. B. Pin. 159. Tourn. Inst. 304. Elem. Bot. 254. Boerh. Ind. A. 57. *Amni vulgare majus, latioribus foliis, semine minus odorato*, J. B. 3. 27. Hist. Oxon. 3. 295. *Ami, Ammi, Amium & Amminum*, Chab. 285. COMMON BISHOPS-WEED. Dale.

This Plant grows about two or three Foot high, with strait, round, chanell'd Stalks, on which grow long-winged Leaves, encompassing the Stalk at Bottom, composed of three smaller Divisions, of long, narrow, crenated *Pinnæ*; on the Tops of the Stalks grow pretty large Umbels of small white Flowers, consisting of five Leaves apiece, whereof two or three are usually bigger than the rest. The Seed is small, about the Bigness of Parsley-seed, of a hot fragrant Taste. It grows not wild with us, though *Parkinson* affirms, that it grew wild about *Greenbith*, in *Kent*; but it has been found by nobody since his Days: In the warmer Countries it is common enough, flowering in the Summer, and dying after it has perfected its Seed, which is the only Part of the Plant in Use.

The Seeds of Bishops-weed are of a drying warming Nature, good to expel Wind from the Stomach and Intestines, and prevent the Colic; they are diuretic, provoke Urine and the Menfes. *Mill. Bot. Off.*

It is cultivated in Gardens, and flowers in *June* and *July*. The Seeds are small, striated, less than those of Parsley, of a light Red inclining to an Ash-colour; of a bitterish, acrid Taste, and of a fragrant Smell; they are sold in our Shops instead of those of the true *Bishops-weed*. It is one of the four lesser hot Seeds. Dale.

The *Ammi* of *Dioscorides*, and the antient Authors, is thus distinguished:

Amni verum, Offic. *Amni Grecicum*, Ger. 881. Emac. 1036. Park. Theat. 912. *Amni alterum, semine opii*, C. B. Pin. 159. *Amni odor origani*, J. B. 3. 27. Raii Hist. 1. 455. Hist. Oxon. 3. 295. Chab. 385. TRUE BISHOPS-WEED. Dale.

Amni is by some called *Ethiopian Cummin*, by others *Revel Cummin*; but some tell us, that *Ethiopian Cummin* is of a different Nature from that of *Amni*. The Seed of this Herb is well known to be much less than Cummin-seed, and of the Taste of *Onganum*. Chuse what is clean, and free from Bran.

It is of a heating, caustic, and drying Quality. Drank in Wine, it cures Gripings of the Intestines, Difficulty of Urine, and the Bites of venomous Creatures; it also provokes the Menfes. It is mixed with Vescicatories of *Cantharides*, in order to prevent the Strangury. Apply'd in a Cataplasim with Honey, it takes off the livid Marks of Blows in the Face. Drank, or the Skin anointed with it, it causes a pale Colour. Used in a Sullumigation with dry'd Raisins, or Rosin, it purges the Uterus. *Dioscorides*, Lib. 3. Cap. 70.

Pliny says the same, and adds, that *Hippocrates* called it *Royal Cummin*, because he thought the best grew in *Egypt*. The *Alexandrins* used it in their Bread, and in Sawces. It asswages Inflammations of the Eyes. Mixed with Linseed, and the Quantity of two Drams drank in Wine, it cures the Sting of a Scorpion; and taken with an equal Quantity of Myrrh, is particularly serviceable against the Bite of the *Cerastes*. They say the Smell of it, at the time of Coition, promotes Conception. *Nat. Hist. Lib. 20. Cap. 15.*

This is rarely to be met with in the Shops, the former supplying its Place. It used formerly to be brought from *Turkey*; the Plant which bears it is smaller, the Leaves narrower, and more divided, it has an Umbel of white Flowers, and Seed

somewhat like the common, but less; of a more pleasant and aromatic Smell and Taste, somewhat like *Origanum*; and is esteem'd to have greater Virtue and Efficacy than the former. *Miller. Bot. Off.*

It is brought from *Alexandria*, in *Egypt*. The Seeds are small, striated, less than those of Parsley, of a Yellow inclining to Red, of an acrid aromatic Taste, and of a fragrant Smell. It is seldom or never found in our Shops. It is Incisive, Aperient, and a Drier; is effectual in Pains of the Colon and Uterus, Inflation of the Stomach, and Obstructions of the Urine and Menfes. Dale.

These Seeds afford a great deal of essential Oil, and volatile Salt.

They are Anti-hysteric, Carminative, and Cephalic; resist Poison, and are one of the four lesser hot Seeds. *Lemery des Drogues.*

AMMION, ἀμμιον, Cinnabar. See **CINNABAR**, and **MIRNUM**.

AMMITES, five **AMMONITES**, is a sandy Stone, which is found in different Sizes; for there are some as large as a Nut, some as big as Peas, some the Size of Vetches, and others of the Seeds of Poppy or Millet. These little Stones resemble the Eggs or Spawn of Fish; some are called *Cenebrites*, and others *Meconites*. Those which are as big as a Pea, are called by some *Mineral Bezoar*, because they are formed in Shells, or little *Laminae*, like the Bezoar; and they are of the same shining Colour, or a little redder; they are found upon the Mountains near *Bern*, in *Switzerland*.

They are soon resolved into Sand, of which they consist: They are called *Ammites*, from ἀμμῶς, Sand. *Lemery des Drogues.*

AMMOCHOSTIA, ἀμμοχωστία, a kind of Remedy for drying the Body, which, for that Purpose, must be laid upon the Sand, which must be heaped upon it. The Sand ought to be very hot, and of the Sea, if it can be had; for River-sand is more humid.

But Salt is more efficacious for the same Purpose than Sand, and better for the Patient to lie down in, with some thin Substance spread under him. But the Salt must be no less than three Palms in Depth; for otherwise its Virtue would easily be dispersed.

It has also the same Effects as ἡλίωσις, **INSOLATION**, which see.

Oribasius, Lib. 10. Cap. 8. *Coll. Med.* tells us, that this Fomentation with Sand is accommodated to such as labour under the Colic, Asthma, Gout, Cachexy, Dropsy, and all those who are afflicted with chronical Distempers; and that all, except Infants, are fit Subjects of this Fomentation: He says further, that it ought to be administer'd in the hottest Days of the Summer, at Sun-rising, on the Shore, in the most fervent Sand, which has deep Pits sunk in it, where the Patient may roll himself, and lie with his Head covered from the Sun-beams, a Covering before his Eyes, and a Sponge, dipp'd in cold Water, held to his Face.

Aetius also mentions this ἀμμοχωστία. *Tetrat. 1. Serm. 3. Cap. 9.* as does *Celsus*, Lib. 3. Cap. 21. for the Cure of a Dropsy. *Dioscorides*, Lib. 5. Cap. 107. says, that the Sand on the Sea-shore, heated with the Sun, dries the Bodies of those who are hydropical, if they are covered with it, all but the Head.

Galen made use of this ἀμμοχωστία, for the Wife of *Boethus*, labouring under a Fluor Albus, as he writes, *Lib. de Præcog. ad Posthumum*. And *Pliny*, Lib. 22. Cap. 25. tells us, that *Sextus Pompeius* used the same kind of Remedy for the Gout. "He stood, says he, above his Knees in Wheat; and his Feet being thus dried, he found himself wonderfully relieved; from which time he used no other Remedy."

Hen. Stephani, instead of ἀμμοχωστία, reads ἀμμοχυσία it is also called ἀμμοχυσία. *Gorræus.*

AMMOCHRYSOS, ἀμμόχρυσος, from ἀμμῶς, Sand, and χρυσός, Gold.

AMMOCHRYSUS, is a Stone sometimes hard, but which generally crumbles betwixt the Fingers like Sand; its Colour is sometimes red, sometimes yellow, intermixed with Spangles of Tale, the Colour of Gold; so that it seems to be mixed with Gold in Powder. This Stone is found in *Bohemia*, and in many other Places. It is only used to put on Writing. *Lemery des Drogues.*

AMMOCHRYSOS is also a Name given to a kind of Mud of a golden Colour, found in the Chanel of certain warm mineral Waters, in *Friseland*. *Castellus.*

AMMODITES, a venomous Serpent, a Cubit in Length, which is its utmost Size, being never described larger. It is of a sandy Colour, and marked all over the Body with black Spots; its Tail is extremely hard, and divided in the upper Part. Some give it the Name of *Cenebria*, that is, *Atillety*, because its Tail is hard like Millet. It has wider Jaws than the Viper, and though it resembles that Reptile in many other respects, is easily distinguished by the Colour; for the Viper is yellowish.

The

The Bite of the Ammodytes is generally followed by speedy Death; but if this does not happen, Blood comes from the Wound, and the Part swells. Soon after Sanies works out, which is succeeded by Heaviness of the Head, and Swooning. Where the Symptoms are most favourable, the Patient does not live above three Days, tho' there are Instances of some who have survived till the seventh Day. The Bite of the Female causes the quicker Death.

Help, in such a Case, is to be sought, first, from the common Remedies, as Cupping and Scarifying the Places all about the Wound, Constriction of the Parts above it, and laying open the Wound with the Knife. Proper Medicines are, Mint drank in Hydromel; Castor, Cassia, and the Juice of Mugwort, taken in Water. Theriaca also is to be taken, and applied to the Hurt; drawing Plaisters are to be used; and after these, such Cataplasms as are proper for the Cure of eating and spreading Ulcers. *Ætius, Tetr. 4. Serm. 1. Cap. 25.*

AMMONIACUM, ἀμμωνιακόν. Ammoniac.

The *Arabians* call the Chrysocolia, *Lezac Aldeheb*, which signifies the same as the Greek χρυσόκολλα, that is, a Ferrumination [Soldering] of Gold. They gave this Name also to Gum Ammoniac, as *Avifena*, on the Word *Affac*, assures us; the Reason he shews for it is, because Books and Papers are gilt with it; for it gives a gold Colour to Books and Papers on which it is laid, or is useful in the gilding or laying on of Gold upon the same. This is *Avifena's* Sentiment; the Gum itself, or Drop, of Ammoniac, he calls *Affac*, or *Azac*. *Alpagut* observes, that among the vulgar *Arabians* it goes by the Name of *Uffac*; and indeed, an ancient *Arabian* Botanist, in an old *Dioscorides*, renders the Tree of Ammoniac *Segjar Aluffac*, that is, the Tree *Aluffac*. In *Scrapion*, *Raxach* is read, by Corruption, for *Haxach*; the *Spaniards* call it *Aguaxaque*.

Avifena calls the Tree *Altarthub*, or *Altarthut*; the *Greeks* say it is called *Agasyllis*; καλεῖται δὲ ὡτὲ ὅλη ὁ θάμνος ἀγασυλλίς, "the whole Shrub that bears it is called *Agasyllis*." *Dioscorides*. *Pliny*, tho' by Mistake, says it is called *Metopium*. Some other of its Names in *Neophytus*, are κεῖθε and ἡλὶς σεφθῶ; the first of which is an Epithet of *Jupiter Ammon*, to whom they gave the Name of κεκεῖθε, "Ram-horned;" and the Reason of its other Appellation, he says, was because its Tear was much exposed to the Influence of the Sun. We commonly call it *Armoniac*, instead of *Ammoniac*. Some learned Physicians have doubted, whether we have the true Ammoniac of the Antients, and not without Reason; for our Ammoniac has not the Characters by which the Antients describe theirs; and 'tis certain, that Kind of it which they call θαύσμα, or θαυσόν, "such as is in Lumps or Fragments," is scarce to be met with in our Days. The Reason of the Name was, because it was broken after the manner of dry Sorts of Gums, whose Parts did not consist of a tenacious Glue. *Dioscorides*, amongst its Characters, would have it to be "like grumous Bits of Frankincense," λιβαρίζον τοῖς χύδρεσι, which *Scrapion* erroneously understands with respect to Smell. It was pure and dense, without Sordes, and of a yellow Colour; *Dioscorides* says, ὡχρῆν, "of a good Colour." They called another Sort of it φεσμα, or φεσόν, "mixed or blended," because it was fat and resinous, easy to be made into a Mass, and full of Impurities from Earth or Sand. This is what we now commonly meet with in the Shops, and the *Greeks* had no other in the Time of *Neophytus*, who accommodating the Words of *Dioscorides* to the Age in which he lived, makes two Kinds of one, speaking thus, Ἐγκεῖθεν δὲ τὸ ἔυχρον καὶ ἄχρον, λιβαρίζον τοῖς χύδρεσι, καθάρων καὶ πυκνῶν, μηδεμίαν ἔχον ρυπαρίαν. "Chuse what is of "a good Colour, without Chips, &c." This is the θαυσόν 'Αμμωνιακόν, "the brittle Ammoniacum," of the Antients. He immediately adds, καὶ τὸ ῥήνιζον, τῇ ὁσμῇ σφοδρῶν, πικρὸν δὲ τῇ γεύσει καλεῖται δὲ τὸ τοιαῦτον ἐρμαλῶδες. "and the "resinous, of a strong Smell, and a bitter Taste; this Sort is "called the *tractile*." He thought that the Ammoniacum of his Times, because it was resinous, and of a viscous, ropy Fatness, was the same as that of *Dioscorides*, which he would have to be λιβαρίζον τοῖς χύδρεσι, "in Lumps like Frankincense;" but this is far from being true; for it is one thing to be ῥήνιζον, "resinous;" and another thing to be λιβαρῶδες, "like Frankincense." This is dry and brittle, the former fat and juicy. Such Bodies as have a Ropiness, and can be drawn out like Pitch or Birdlime, may be called ἐρμαλῶδες, "tractile;" but the θαυσῶ, "the brittle," are properly such as, being broken, are shivered into small Bits and Fragments, and cannot be drawn into Threads. Thus he made one of two very different things; and, on the contrary, made a Distinction where was no Difference; for he immediately subjoins λιθῶδες ἢ γεῶδες εἶσμα, "the Mixed has Earth or Stones in it." The Ammoniacum of *Dioscorides*, which, he says, is called εἶσμα, is the same with the fat and resinous, which, on account of its Viscosity, may be easily worked up into a Mass. *Pliny* has it, *Genera ejus duo, Thrauston masculi Thuris similitudine, quod maxime probatur; alterum pingue ac resinosum, quod Phyrama appellant.* "There are two Kinds of it, the *Thrauston*, [brittle] which "is like Male Frankincense, and most valued; the other a fat

"and resinous Substance; which they call *Phyrama*, [a Mix-
"ture]." The Tear, which is of a pinguious Ropiness like Rosin, being too liquid to stick to the Tree, falls to the Ground, and there gathers Filth, by taking hold of Bits of Woods, and Sand, and incorporating with them into one Mass. This is the λιθῶδες, "stony;" and γεῶδες, "earthy," Ammoniacum of *Dioscorides*, and the fat and resinous Ammoniacum of *Pliny*, which is called *Phyrama*. What concretes on the Tree, like Frankincense, is not only dry, but pure, and free from Filth. *Neophytus*, who saw no other Drop of Ammoniacum used in his Time; more than what we see now, thought the liquid and the resinous were the same with the concrete, and again separated the viscous and fat from the resinous, which was a Complication of Absurdities. The *Greeks* universally call it 'Αμμωνιακόν θυμίαμα, "Ammoniac Perfume;" because it serv'd them for that Use, tho' it be of a strong and rank Scent. *Dioscorides* says, κασσεῖον τῇ ὁσμῇ, "smelling like Castor;" *Neophytus*, τῇ ὁσμῇ σφοδρῶν, "of a strong Smell." *Galen* says it has καεῖς ὁσμὴν, "the Smell of Coriander." But I think it should be read κασσεῖον, "of Castor," instead of which they wrote by way of Compendium, καεῖα, "of Coriander." *Pliny*, amongst Odours and Spices, reckons Ammoniacum, with the Juncus, and Calamus Aromaticus, and sweet-scented Moss. But 'tis no more strange, that this Gum should have a Place among sweet Odours appointed for Perfumes, than that Galbanum should be reckoned among the Spices, that composed the sacerdotal Perfume, *Exod. xxx. 31.* which consisted of Stacte, aromatic Onyche, and Frankincense. In *Hebrew* it is called חלבנה, *Chelbena*, whence comes the Greek χαλβάνη. Galbanum was also an Ingredient in Ointments, and especially in the Ointment of Almonds used among the *Egyptians*, which for that Reason was called μετώπιον, "Metopium," a Name for Galbanum. Of the Ointment of Almonds, the *Greeks* thus write: 'Αιγύπτιοι τὸ τοιοῦτον ἐξ ἐνδοκίμωνος μετώπιον ἀντὶ περὶ πηγύρευσαν, ὅτι χαλβάνην λαμβάνει τὸ δὲ φύλον ἐξ ἧς γίνεται ἡ χαλβάνη καλεῖται μετώπιον. "The *Egyptians*, who invented "this Oil, called it *Metopium*, because it contained Galba-
"num; for the Plant whence Galbanum is generated is so
"called." Now the Scent of Galbanum is not much different from that of Ammoniac, if it be true, as *Dioscorides* says, that Galbanum uses to be adulterated with Rosin, husked Beans, and Ammoniac. So that *Pliny* changed Names, when he said, that the Tree of Ammoniac was called *Metopium*, which, according to others, is a Name for Galbanum. Some will have the Tree, that sweats Ammoniac, to be an Herb. The Author of *Ætius* upon *Dioscorides* has it, Πόα ἐστὶν, ὅθεν 'Αμμωνιακόν θυμίαμα. "It is an Herb which produces the Ammoniac
"Perfume." This is rashly offering Violence to the Words of *Dioscorides*. *Scrapion*, quoting *Dioscorides* by Name, and seeming to speak his very Words, relates, that they make an Incision in the Root of this Plant, and so extract the Tear; where 'tis plain he took it for an Herb. *Pliny* calls it a Tree, and says, that the Tear distils from it after the manner of Rosin; by which he must mean, that it flows spontaneously. *Dioscorides* calls it, δένδρον ναυθακιδέες, "a ferulaceous Tree," and θάμνος, "a Shrub;" nor indeed do Frankincense and Myrrh distil from great Trees. There is no mention of a Root in a very ancient Copy, tho' the Editions have it thus: Καλεῖται δὲ ὅλη ὁ θάμνος σὺν τῇ ῥίζῃ 'Αγασυλλίς, "the whole Shrub, "with its Root, is called *Agasyllis*." There is no need of a Root here, and no such thing is authorized by this excellent Manuscript. And 'tis downright false, that Ammoniac sweats from the wounded Root of an Herb, as *Scrapion* maintains. Authors of the greatest Antiquity declare, that it flowed spontaneously.

In the medicinal Lexicons of the *Greeks*, I find γομίζον and γομίζον. [Compacter or Fastener] to signify this Ammoniac sweet Gum, in the same Sense perhaps with the *Arabic* Appellation, *Lezac Aldeheb*, which, according to *Avifena*, belongs to Ammoniac, and is properly that, by which Gold sticks to Gold. Now γομίζωσι, is "to compact," and γομφοὶ σὺν-δισμοί, "Gomphi are the Ligaments," by which Wood adheres to Wood. Wooden Pegs were also called by this Name [Gomphi]. The Glossaries, or Lexicons, have it, γομίζον, λιβαρὸν θυμίαμα, "Gomphites is the *Libyan* sweet Gum;" and γομίζον τὸ θυμίαμα, "Gomphiton signifies the sweet
"Gum."

Nicander, in his *Alexipharmacs*, puts 'Αμμόνιον, [Ammonium] for Ammoniacum, in the following Verses:

— ἐν ὃ ἵπαρτι
Θάπτει βαλὼν χύτρε' Ἀμμόνιον.

"Throw into the Pot a sufficient Quantity of Ammonium,
"and let it heat." It is corruptly read σκαμμόνιον, [Scammonium] and wrongly understood to be Scammony, that is, the Juice of Scammony; but this the same Author a little before called δάκρυ καμνῶν, "the Tear of Kamon, [Scammony];

— τὸ τῆ δάκρυ νεκρῶ ἀλλοιοῦ καμνῶν.

"and the fresh-expressed Tear of Scammony." Εἰμένει in
Y y y y ραῖ

put for *σμάμων*, as *μάραγδος* for *σμάραγδος*, [Maragdus for Smaragdus]. The Juice is *σμάμωνιον*, "Scamonium," the Herb *σκαμωνία*, "Scamonia." Therefore *Ἀμμώνιον*, [Ammonium] and *Σκαμμώνιον*, [Scammonium] are two different things.

Sal Ammoniac, *ἄλας Ἀμμωνιακόν*, took its Name from the same Place. The Greeks, especially the more modern ones, in their medicinal Lexicons, are very much divided in their Opinions upon this Subject. The *Saracenic Glossary of Ephodius* renders the Arabic *مِلْح*, [Milch] by Ammoniacum. *مِلْح*, τὸ Ἀμμωνιακόν ἄλας, "Milch is Sal Ammoniac." *Milch* is an Arabic Word, which signifies Salt. The Greeks change the Arabic Aspiration into a stronger, and express it by their *χ*, *ch*. Thus they say, *ἄλχαννα*, "alchanna," for alhanna, &c.

Some there are who seem to have appropriated the common Appellation of Salt, *καὶ ἐξοχόν*, "by way of Eminence," to Ammoniac; of which the old Interpreter of *Avicenna* gives a Hint, by thus expressing his Title: *Of Sal Ammoniac, that is, of Salt*. In the Arabic 'tis *Nuxader*, a Word that has its proper Meaning, and is remote from all Signification of Salt. Of all Kinds of Salt, *Dioscorides* approves of the Fossile [Rock-salt] as of most Efficacy, and among the Fossile, of Sal Ammoniac; so that 'tis no wonder it took the proper Name of Salt on account of its Excellency. Others of the more modern Greeks call it *ἄλας τζαπαεικόν*, "that is, fossitious Salt;" for *τζάπα* [tzapa] and *τζάπιον* [tzapium] signify with them an Instrument to dig with, τὸ ὀρύγιον, [Orygium]; with the Latins, *Sappa*, which is a Word we yet retain; and hence comes the Verb *Sappare*, "to sap." *Nicomedes*, the Iatrofoplist, in his Lexicon, has: "ἄλας ὀρυκτὸν τὸ γαρζαεινόν. ἄλας Ἀμμωνιακόν τὸ τζαπαεικόν. ἄλας Καππαδοκικόν τὸ Ἀρμένιον. ἄλας ταερχεζίν τὸ θαλάσιον." "The fossitious Salt is the same as the Gangrinum, Sal Ammoniac is the Tzapari-cum, the Cappadocian Salt is the same as the Armenian, and the Salt for seasoning is the Sea-salt." You see he distinguishes the fossitious Salt from the tzapari-cum, such as he makes Ammoniac to be; tho' *Dioscorides* makes Ammoniacum to be a Species of fossitious Salt; and, to speak the Truth, the Tzapa of the Greeks is not properly an Instrument with which they dig the Earth, but such as they cut Stones with in Quarries. Sal Ammoniac, we are told by *Serapion*, is pulled out of hard and transparent Stones; for which Reason there is need of a Sappa, [a sort of Pick-ax] to get it out, and to cut it, which Instrument the old Latins called *Upupa*, because it has a sharp End like the Beak of a Lapwing. The Glossaries have it, *Upupa*, ὀρύγιον [Orygium]. A very celebrated Physician, and well exercised in these Studies, rejects the Opinion of *Serapion*, principally, on account of his making Ammoniac derive its Name from the Sands out of which it is digged, being concentered into Crusts and Laminæ. The Absurdity of this Opinion may be evinced several ways: First, no considerate Person would derive Ammoniacum, ἀπὸ τῆς ἄρμης, "from Ammos," [the Sand] but ἀπὸ τῆς Ἀμμωνίας, "from Ammon," for the same Reason as Gum Ammoniac, which cannot be thought to takes its Name from Sand, tho' *Pliny* be also of that Opinion. *Ἀμμων*, "Ammon," himself indeed, took his Appellation from the Sands; but *Regio Ἀμμωνιακή* took its Name from *Ammon*, who had a very famous Oracle in those Parts; and whatever was discovered therein worthy Observation, was called *Ἀμμωνιακόν*, "Ammoniac-cum." *Pliny* tells us, that the Ammoniac was dug out of large Caverns. *Levisimus intra specus suos, in Lucem universam prolatus incredibili Pondere ingravescit*. "Though it be very light within its own Caverns, it increases in Weight after a surprising manner when it is produced in open Light." And he gives us his Opinion why it was called Ammoniacum: *Nam & Cyrenaici Tractus nobilitantur Ammoniaco, & ipse, quia sub Arenis invenitur, appellato*. "The Cyrenaean Territories are celebrated for producing Sal Ammoniac, so called, because it may be found under the Sands." A ridiculous Reason! No, it has its Name from being found in the Ammoniac Region, ἐν τῇ καὶ Ἀμμωνα Λιβύῃ, "in Libya, about Ammon," which was a Part of the Country of *Cyrene*. Nay, sometimes, not only the inland Parts, but all *Libya* come under this Denomination. Thus *Stephanus*: Ἀμμωνία ἡ μεσότης Λιβύῃ, καὶ ἀπὸ τῆς τῆς Ἀμμωνίας ἑως ἐκαταίτο ἀπὸ Ἀμμωνίας, "Ammonia is midland Libya, and sometimes the whole Country of Libya is so called from Ammon." We may conclude then, that Sal Ammoniac has its Name from the Country *Ammonia*, and not from the Sand; for then it would be called *ἀμμικίς* or *ἀμμίτις*, "ammicus or ammites." *Pliny*, in the same Place, tells us: *Quo Exemplo postea inter Egyptum & Arabiam, etiam squalentibus Locis, captus est inveniri detractis Arenis, qualiter & per Africæ sitientia usque ad Ammonis Oraculum*. "In which manner they began afterwards to discover it in the Deserts between Egypt and Arabia; by removing the Sands, as they do also in the dry and barren Parts of Africa, as far as the Oracle of Ammon." 'Tis certain, that in the Country of *Ammon*, where the Soil was all sandy, the Caverns, that were dug under the Sands, yielded

Sal Ammoniac; but in other Places, where was no Sand, it was probably dug out of the Earth, or even from Hills. *Pliny*, *Lib. 31. Cap. 7. Effoditur & à Terra, ut palam est Humore densato in Cappadocia. Ibi quidem cæditur Lapidum specularium modo. Pondus magnum Glebis, quas Micæ vulgus appellat*. "It is dug out of the Earth in Cappadocia, as it is well known, being a condensed Humour. They cut it after the manner of the Lapis Specularis. The Lumps, which they call *Micæ*, are very ponderous." You will say the *Cappadocian* is not of the same Kind with the *Ammonian*. I answer, both are reduced under the Kind ὀρυκτὸν ἄλων, "of fossile Salts," which is *Pliny's* Opinion. *Dioscorides* makes three Kinds of Salt, τὸ ὀρυκτὸν, τὸ θαλάσιον, καὶ τὸ λιμναῖον, "the fossile, [Rock-salt] the Sea-salt, and what comes out of Marshes." But this last may be included under the Denomination of Sea-salt. He comprehends Sal Ammoniac under the fossile Kind, tho' it be in some respects a proper Kind of itself, and of a peculiar Nature, according to the Diversity of Sun and Soil. Observe the Words of *Dioscorides*: Τῶν δὲ ἄλων ἐνεργέστερον μὲν ἐστὶ τὸ ὀρυκτὸν τέτα δὲ κοινὸς μὲν τὸ ἄλιθον καὶ λευκὸν καὶ διαφανές, πυκνὸν τε καὶ σμαλὸν τῇ συγκρίσει ἰδίαις δὲ τὸ Ἀμμωνιακὸν τῷ γένει, ἐνχαρὲν δὲ, καὶ ἐνθάδε τὰς διαρρέεις ἔχει. "Of Salts, the fossile is of the greatest Virtue, and of this Kind, in general, what is free from Stones, white and pellucid, and of a dense and equable Substance; in particular, that Sort of it called *Ammoniac*, which is easy to cleave, and has strait Fissures." Amongst the proper Characters of the best fossile Salt, it is requir'd, that it be white and pellucid. Sal Ammoniac had both these. *Pliny* says of Sal Ammoniac: *Similis est colore Alumini quod Schiston vocant, longis Glebis, neque per lucidus, ingratis sapore, sed Medicinæ utilis*. "It is like the scissile Alum in Colour, and is in long Pieces, not pellucid, has an unsavoury Taste, but is useful in Medicine." As to its not being pellucid, I question, whether he is to be credited. *Dioscorides* makes Whiteness and Transparency two Properties of the best fossile Salt, and seems to ascribe them both to Ammoniac. And *Pliny* himself, a little after, says, that the *perspicuous*, [perspicuum] that is, the pellucid, is the most valued: *Probatur quammaxime perspicuus, rectis Scissuris*. "The most perspicuous, with strait Scissures, is in Esteem." By *perspicuous*, we understand the τὸ διαφανές, "Pellucidness," as when we say, *perspicuus Amnis, perspicuum Vitrum*, "a perspicuous Stream, a perspicuous Glass." Thus the Glossaries: *Perspicuum, διαφανές, διαρρέεις*. "Perspicuous, that is, diaphanous, pellucid." Whatever transmits the Image, and can be seen through, as was the way of speaking among the Antients, is perspicuous; so that *Pliny* contradicts himself. He dressed up his Account from several Authors; in one he found, that Ammoniac was like *scissile* Alum in Colour; this is white indeed, tho' not pellucid, nor appears divided into Fragments like grey Hairs. Hence he imagin'd, that it was in long Pieces, but not pellucid. In another Author he read, that τὸ διαφανές, "the diaphanous," was most valued; this he here renders *perspicuous*, which is the same as *pellucid*.

Avicenna gives us three Characters of the best Sal Ammoniac, which are, τὸ ἐνχαρὲν, "Readiness to cleave," τὸ διαφανές, "Pellucidness," and a Colour like Crystal; which last is so render'd by the Translator, from the Arabic *Albeluri*: *Et melior ex eo, qui est ut Borax, clarus, crystallinus*. "The best of it is like Borax, clear, crystalline." There is nothing of Borax in the Arabic, which is the Word the Barbarians use for *Chrysocola*, a Substance which has no Relation or Similitude to Sal Ammoniac.

In the Arabic Edition, there are three Epithets which *Avicenna* gives to the best Sal Ammoniac. The first answers to the Greek *ἐνχαρὲν*, easy to be divided; the second is the Word by which *Avicenna* always translates the *διαρρέεις*, diaphanous, of *Dioscorides*; the third is *Albeluri*, which the Interpreter translates *Crystallinum*, with better Reason than others interpret the Arabic *Belur*, *Beryl*.

But they were led into this Opinion by the mere Sound of the Word, as tho' *Belur* was made out of *Beryl*, by a Transposition of Letters; but the Use of the Word shews the contrary. The best *Beryls* are of a pure sea-green Colour. The *Chrysoberylli* are another Sort, of a glittering Brightness, that has a Cast of the Colour of Gold. *Bilur*, in Arabic, must signify a white Gem; for the Ammoniac λευκὸν καὶ διαφανές, "white and pellucid," is compared to a *bilurine* Colour; yet it cannot be crystal; for no such thing is generated in India; but the *Nubian* Geographer writes, that *Bilur* is found in many Places of India; for Instance, in *Sarandib*, an Island of India, under the eighth Parallel of the third Climate, where he says, they find the best and largest *Albilur*. I am not for rendering this Word *Beryl*, as a learned Translator has done, for the Reasons above-mentioned. I rather incline to the Opinion of those who interpret the Hebrew *ספיר* *Saphir* by *Albilur*, which almost all the Interpreters take to be the Onix Gem, that takes its Name from its Whiteness, resembling that of a human Nail, though it is said to be of several Colours.

There

There is a sort of Marble also, which goes under that Name for the same Reason. *Paulus Sibentarius* :

Ὅσα τ' ὄνυξ ἀνέηκε δ' αὐγάζοντι μέγαλλον
Ὀχλείων ἐρίτιμα,

“ Such [Rays] as the Onyx, precious in its Paleness, emitted
“ from its splendid Body.”

An antient *Arabic* Version renders βήρυλλον “ Beryl,” in the Apocalypse *Bilur*. Certainly if *Bilur* be a Beryl, it must be understood of that kind of Beryl, which is one of the last enumerated Stones, and said to be like Crystal. It can be no other than a crystalline and white Gem, that goes by this Name among the *Arabians*; for that kind of Salt which is commonly called *Sal Gem*, is said, by *Avicenna*, to be like *Albilur*. 'Tis certain that this was white and pellucid, for which reason the *Barbarians* called it *Salem Gemma*, “ the Salt of the Gem,” whereas they should rather have called it *Salem gemmeum*, “ a Gem-like Salt;” so *gemmeus Miles*, “ a Gem-like Man,” in the Play of *Chefs*, in *Martial*, is put for *vitreus*, “ one of “ Glass,” which Poet often calls Glass by the Name of Gem, on account of its Brightness and Transparency. The Word for *Sal Gem* in the *Arabic* Text, according to the Translator of *Avicenna*, is *Darani*; in which Term I see nothing that answers to the Notion of *Sal Gem*. Does it not come from the *Hebrew* דָּר דָּר *Dar*, which signifies a *Parian* Stone, and white Marble? Indeed this fossile Salt, which they call *Sal Gem*, is of a Marble-like Whiteness and Splendor. In *Myrepsus* you find σαλιζέμε (Saltzeme) for the *Latin* *Sal Gemma*.

In an antient *Arabic* Glossary I find *Calloflicus*, which I read *Chalasticus*, ὁ χαλαστικός. We know what the Physicians mean by *Chalastica*, which are such Medicines as have a mollifying, relaxing, dissolving, digesting, and resolving Virtue. *Avicenna*, in that Place, seems to enumerate and distinguish the Kinds of Salts by their proper Virtues and Faculties, rather than from any other Difference in Nature, or Place of Growth. The first he mentions has an astringent Virtue, such as is in Nitre: Another, he says, (as he is rendered by the Translator) is of a thin brittle Contexture; and a third excavated; these I don't understand, tho' he uses the same Word *excavated* for a kind of Salt throughout the Chapter. *Alpagus*; in his Lexicon, interprets it *Imperial Salt*: What it is I can't say. Perhaps it should be an *Arabic* Word which implies a Faculty of seizing and carrying off, from a Verb of the same Import with the *Hebrew* חָטַף *Hhataph*, which signifies to snatch and carry away by Force. By this, perhaps, he understands τὴν σμυκτικήν δύναμιν, “ the absterfve Virtue,” which exerts itself in carrying off, by deterging and absterging. An antient *Arabian* Interpreter renders the λίθος μολυβδοειδής, *Lapis Plumbarius* of *Dioscorides*, by a Word which leaves us in doubt whether he meant a Salt of an azure Colour, or the *Armenian* Colour, which he had somewhere read was reckoned, by the *Greeks*, among the Kinds of Salt. Indeed *Zosimus Panopolitanus*, by his ἀλάς κυανὴ Ἀρμενικὴ, “ of an *Armenian* azure Salt,” seems to speak of a sort of Paint of that Colour: So *Serapion* informs us, that *Chrysocola* was a kind of Salt. There are also purple Salts, and yellow Salts: Let us suppose then, that *Avicenna* calls the azure Salt by this Name; yet I cannot be dissatisfied with my Conjecture, that the Place should be read by a Word implying the σμυκτικὴ δύναμις, “ absterfve Faculty.” What immediately precedes confirms me in it; for what the Translator renders *rare and brittle*, I would have interpreted *biting*; from a Verb which signifies to bite and corrode. *Pliny* says of Salt: *In medendo verò mordens, adurens, repurgans, extenuans, dissolvens*: “ In Medicine it is of a biting, caustic, cleansing, attenuating, and dissolving Quality.”

Avicenna next mentions another kind of Salt, which he calls *Darani*, or *Drani*. The Author of the old *Latino-Arabic* Dictionary, renders it χαλαστικόν, “ relaxing:” Therefore *Avicenna* gives this Name to a Salt that is endued with an emollient and dissolving Virtue, which *Dioscorides* calls διαχυτικὴ δύναμις, “ a dissolving Power;” *Pliny*, *dissolvens*, “ dissolving;” such especially is the fossile Salt, or *Sal Gem*; for the bitterest is most effectual in dissolving, which is the Opinion of *Avicenna* himself. He goes on to tell us, that there is another Sort, which he calls *Naphthi*: By this is understood *Naphthie* Salt, which takes its Name from *Naphtha*, a kind of liquid Bitumen; the same, they say, which *Galen* calls *Sodomitic* Salt. I question whether they are in the right; and we are to examine if the Words may not bear another Sense. Perhaps the Author intended that kind of Salt which *Dioscorides* calls ἐσχάρωτικος, “ escharotic;” *Pliny*, *adurens*, “ caustic.” The *Arabians* also call by the Name of *Naftha*, a Vesicle, Bladder, or Tubercle, from the *Greek* ἀφθα, “ *Aphtha*,” which is explain'd τὰ ἐν στόματι ἔλκν, and φθοῖν, “ Ulcerations in the Mouth.” 'Tis certain that the *Greeks* put *Aphtha* for Bitumen; as in *Constantius de Imperio*, πηγαι ἀφθάν ἀναδιδάσκει, “ Springs yielding “ *Aphtha*.” This a learned Gentleman renders Springs which cause Ulcerations; whereas it means Springs running with liquid Bitumen, or *Naphtha*. So then *Aphtha* is put for *Naph-*

tha; and the *Arabians*, on the contrary, put *Naphtha* for *Aphtha*, which signifies the Vesicle, or Bladder of an Ulcer. Hence *Sal Naphthi*, ἐσχάρωτικός, “ escharotic,” which by its caustic Quality raises Ulcers and Aphthæ on the Skin, and induces Eschars. *Avicenna* observes nearly the same Order with *Dioscorides*, in assigning proper Qualities to the different Kinds of Salt: Δύναμιν δὲ ἔχουσιν οἱ προεξηρημένοι ἅλεις πολὺ χρεστον, συπικτικὴν τε καὶ σμυκτικὴν, καὶ ἀποκαθαριστικὴν, καὶ διαχυτικὴν. ἔτι δὲ καλὰ σαλικὴν, καὶ ἰχθυώτικὴν, καὶ ἐσχάρωτικὴν, τῷ μάλλον καὶ ἥττον διαφέρουσιν. “ The fore-mentioned Salts have many useful Qualities, being indued with an astringent, absterfve, cathartic, “ and discussive Virtue; together with a Power of repressing, “ attenuating, and raising an Eschar, being more or less efficacious according to their different Kinds.” The escharotic Salt, then, of *Dioscorides*, is the *Naphthi* of *Avicenna*, render'd literally *Vesicatory*. Tho' the modern Physicians call those scorching Medicines *Vesicatories*, which they will have to be of a milder Kind than Escharotics and Caustics; yet the *Greeks* often confound them, and call those Topics, which raise Vesicles on the Skin, and induce a Crust over the scorched Part, by the general Name of Caustics and Escharotics. 'Tis certain that there is to be found a Salt indued with a Faculty of scorching the Skin, causing an Itching, and raising Pustules. *Strabo* calls such Salts κνησμώδεις ἅλεις, “ Itching Salts,” some of which Kind, he says, are to be found in a certain Lake of *Atropatene*, a Province of *Media*, which burns the very Clothes that are washed in it. Λίμνην δὲ ἔχει τὴν Σπαῦτα, ἐν ἣ ἅλεις ἐπανθύνει πύπνησαι· ἐστὶ δὲ κνησμώδεις καὶ ἐσταλγίτις· ἑλαιον δὲ τῷ πάθους ἄκοι, ὕδωρ δὲ γλυκὺ τοῖς κατὰ πυρῶσιν ἰμασίοις. ἢ τις κατ' ἀγνοίαν βάψεν ἐν αὐτῇ πλύσεως χάρις. “ It has a Lake called “ *Spaula*, in which are Salt Springs, which concrete. These “ Salts raise a troublesome Sort of Itching, which is cured by “ Oil. The Water burns Clothes that are inadvertently “ plunged in it, in order to be washed; in which Case they “ have recourse to fresh Water.” *Strabo*, *Lib. 11*. That Salt must needs be very scorching and escharotic, or, at least, as the Physicians speak, *vesicatory*. *Vesicatories* are properly such Topics as do not only raise a Redness, but Ulceration of the Skin, with Vesicles and Pustules, in *Arabic*, as I said, call'd *Naphthi*. The *Arabians* commonly insert an *N* in the Middle of Words; but to this Word, which is taken from the *Greek*, they have prefixed it, saying *Naphtha* for *Aphtha*. *Avicenna* says that *Sal Naphthi* is black, which is the Colour of Gunpowder, in a *Greek* Epigram called *Ethiopian Powder*, which is nearly the Name commonly given to *Naphthie* Salt. *Avicenna* informs us, that it is of that Colour on account of the *Naphthie* city which is in it. He calls it, in *Arabic*, *Naphthia*, by which I understand a Faculty of burning, and raising a Blister: Thus, in the same Author, *Nitrofa* is Nitrosity; and there are other Words of a like Turn. He says, that it contradicts this black Colour from its fiery and adust Nature; and that it loses this Quality when it is burnt, and returns to the Nature of *Sal Gem*. Indeed all Salts, when burnt, lose their Acrimony, and rather acquire a diaphoretic Quality, which is accounted a principal Property of *Sal Gem*: Οἱ δὲ κεκαυμένοι διαφορεσι μάλλον. “ Salts, “ when burnt, are the more diaphoretic.” *Paulus Aegineta*. *Avicenna*, in the same Place, adds, that the *Indian* Salt was black, not on account of its *Naphthie*ty, like the *Naphthie* Salt, but in its proper Substance. 'Tis doubtful what Sort he here calls the *Indian* Salt. The antient *Greeks* called their *Sugar Indian* Salt, because they found it in Canes, concreted after the manner of Salt. The same Author, *Lib. 4. Cap. Of the Roughness of the Tongue, in feverish Patients*, mentions a Salt which was brought from *India*; this appears to be the *Sugar* of the Antients; nor is it strange, that *Avicenna* should reckon this among the other Kinds of Salt, tho' it be of a very different Nature; for thus, under the Head *De Atramentis*, “ Of Inks,” he speaks of the *Indian* Colours, because the *Greeks* called them μέλαν Ἰνδικόν, “ *Indian* Ink.” Most of our later Writers seem to understand the Passage of *Avicenna*, where he treats of the Differences of Salt, and, among the rest, mentions *Indian* Salt, to be meant of this Salt. For *Brassavolus* writes, that the *Sugar* of the Antients, which themselves inform us was a kind of Salt found upon Canes, was not imported to us at this Time; but that the *Sugar* commonly called *Candum*, “ *Sugar-candy*,” supplied its Place; and that the Druggists commonly used, instead of it, I know not what Sort of Drug, which was black on the Outside; because, it seems, the *Indian* Salt of *Avicenna*, as he informs us, was black. But this very thing is the clearest Proof, that the *Indian* Salt, of which *Avicenna* treats in that Chapter, is different from that *Indian* Salt which he mentions in another Place, on the Authority of the Antients, and is no other than *Sugar*: For that *Indian* Salt has the Colour of common Salt, as *Avicenna* himself, in his Chapter *De Asperitate Linguae*, expressly says. And the *Greeks* also tell us, ἅλς ὁ Ἰνδικὸς χροῖα μέν καὶ συστάσει ὑμῶν τὴν αὐτὴν ἀλὶ, γεύσει δὲ μέλιωδης. “ The *Indian* Salt, for Colour and “ Substance, is like the common Salt, but tastes like Honey.” But the common Salt is not black, but rather white. *Pliny* also tells us, that *Sugar* (which is the *Indian* Salt of the Antients.)

tients) was white, and concreted after the manner of Gums. Therefore *Avifena*, in his Chapter of the Kinds of Salt, must be understood to mean the true *Indian* Salt, not the Sugar of the Antients, which was, 'tis true, a kind of Salt; for Sugar is white, but this Salt of *Avifena* black. *Mesue* also mentions this Salt, and tells us, that the Naphthic and *Indian* Salts are to be preferred before all others. *Strabo*, *Lib. 5.* relates, from *Clitarchus*, that in *India* there are Quarries of native Salt, where the Salt grows again, like Stones, in many Places. Speaking of the remarkable Things of the Island of *Ilva*, *Τὴν δὲ παραδόντων ἡ νῆσος ἔχει, καὶ τὰ ὀρύγματα ἀναπληρῶνται πάλιν τῷ χρόνῳ τὰ μέλαινα βένια, καθάπερ τὴν πλασμῶνός φασ τὴν ἐν Ῥόδῳ, καὶ τὴν ἐν Πάτρῳ πέτρῃ τὴν μάρμαρην, καὶ τὴν ἐν Ἰνδοῖς ἄλας, ὡς φησὶ Κλεῖταρχος*. "There is one Thing very remarkable in this Island, which is, that the Pits which are digged are fill'd up again in time, as they say the Canals are in *Rhodes*, and the Marble Quarries of *Paros*, or those of Salt in *India*, as *Clitarchus* relates." *Pliny* writes, that the same Sort of Salt is found in *Oromenus*, a Mountain of *India*, which he seems to take from *Clitarchus*: *Sunt & Montes nativi Salis, ut Indus Oromenus, in quo Lapidinarum modo cæditur renascens; majusque Regum Velligal ex eo est quam ex Auro atque Margaritis*. "There are also Mountains of native Salt, like *Oromenus* in *India*, where they cut it like Stones out of Quarries, and it grows again; and it yields a greater Revenue to their Kings than Gold and Pearls." But, perhaps, the *Arabians* called this Salt *Indian*, not from the Country, but the Colour; as they say *Indian Myrobalans*, because that Sort is black; and *Indicum Colorem*, τὸ μέλαν, "Ink, *Indian* Colour." However, there are two homonymous Kinds of *Indian* Salt of a different Nature; namely, the Sugar of the Antients, which is the *Indian* Salt of the *Greeks*; and the *Indian* Salt of the *Arabians*.

To return to *Sal Ammoniac*; the *Barbarians* put *Armoniac* for it, as they do *Gum Armoniac* for *Ammoniac*. Hence *Pandettarius* calls this Salt *Armoniac*, as if it came from *Armenia*. I don't doubt that they dig Salt in *Armenia*, but then it is different from *Ammoniac*. At present we don't know what *Sal Ammoniac* is: Some conjecture that it is made of Camels Urine, concreted by Art. This seems probable to a very learned Man, because, as he says, it is imported at *Venice* from the *Eastern* Countries, where are innumerable Herds of Camels: This deserves to be laughed at; true *Ammoniac* comes rather from the *Western* than the *Eastern* Parts of the World; for they dig it in *Ammonia*, a Country of *Cyrenean Africa*. It is of the same Kind, indeed, as *Rock-salt*, and *Sal Gem*; but is supposed to have a peculiar Property from the Nature of the Place. *Sal Gem* is as white and transparent as *Sal Ammoniac*. *Herodotus* says, there are Mountains or Hills of Salt beyond the Country of *Ammonia*, whence they dig Salt, *Lib. 4.* Μετὰ δὲ Ἀμμωνίας, διὰ τῆς ὁρῆς τῆς ἑρμῆς δὲ ἀλλέων δεκά ἡμέρας ὁδὸν, κολῶνός τε ἄλς ἐστὶν ὅμοιος τῷ Ἀμμωνίῳ. "Ten Days Journey beyond *Ammonia*, upon the Edge of the Sands, runs a Ridge of Hills of Salt, which is like the *Ammoniac*." Hence it appears, that *Sal Ammoniac* does not take its Name from the Sand, but from the Country *Ammonia*. *Scrapian* tells us, that it is extracted from hard and clear Stones; which Expression has been criticized by a very learned Physician, though without Reason; when he informs us, in the same Place, that it is imported from the Country of *Corasan*; this must not be accounted the true *Sal Ammoniac*, which can only be brought from the Country of *Ammonia*, where it is produced, and whence it takes its Name. The *Corasan* Salt is of the same Kind, but not the same with *Ammoniac*. He tells us, in the same Place, that it is of several Colours, as black, white, and partly-coloured; but the ancient *Greeks* describe an *Ammoniac* of but one Colour, which is white, and pellucid like Crystal; and in this they are followed by *Avifena*, who reckons but one kind of *Ammoniac*; of which Kind, and of this perhaps the blackest, is what the *Arabians* called *Mileb hendi*, *Indian* Salt. *Salmasius de Homonym. Hyl. latr. Cap. 111.*

Of GUM AMMONIAC (or HAMMONIACUM).

AMMONIACUM (*Gum Ammoniac*) is the Juice of a ferulaceous Plant, (νέφουζ) which grows in that Part of *Libya* which lies about *Cyrene*. The whole Shrub and Root together are called *Agasyllis*.

Chuse what is of a good Colour, free from Chips and Gravel, in small Lumps like *Frankincense*, pure and dense, clean from Dross, smelling like *Cattor*, and of a bitter Taste. This sort is called *Thrausma* (Lump or Fragment); but that which is mixed with Earth or Stones, *Phyrama* (Miscellany). It is generated in *Libya*, near the Temple of *Ammon*, being the Juice of a ferulaceous Tree.

It has a mollifying, drawing, heating Quality, discutive of Hardnesses and Swellings. Being drank, it loosens the Belly, and brings away the Fætus. A Dram of it, taken in Vinegar, wastes the Spleen, and helps the Gout and Sciatica. It gives Relief also in the Asthma, Straightness of Breath, (ὀρθοπνοίαις) Epilepsy, and Humidity of the Thorax, if made into an Ecleg-

ma with Honey, or taken in the Juice of *Pisfan*. It expels bloody Urine, absterges white Specks in the Eyes, (τὰ ἐν ὀφθαλμοῖς λευκώματα) and takes off the Roughness of the Skin. Levigated in Vinegar, and applied, it mollifies the Hardness of the Liver and Spleen. Applied in a Cataplasm with Honey, or mixed with Pitch, it dissolves Tophi generated about the Joints. Mixed with Vinegar, Nitre, and *Cyprine* Oil, for an Acopon, and the affected Parts anointed therewith, it relieves those who labour under Lassitudes, or the Sciatica. *Dioscorides, Lib. 3. Cap. 98.*

Pliny gives much the same Account of it as *Dioscorides*.

In that Part of *Africa* which borders on *Ethiopia*, amongst the Sands, distils the Tear of *Hammoniac*, taking its Name from the Oracle of *Hammon*, near which grows the Tree call'd *Metopion*, whence it flows in manner of a Gum or Resin. There are two kinds of this *Hammoniac*, one called *Thrausma*, like *Male Frankincense*, which is most valued; the other is fat and resinous, and named *Phyrama*. It is adulterated with Sand, as if it were contracted in its Growth; for which reason, that which is in the smallest and purest Lumps bears the highest Price, which is forty Asses (about three Shillings) the Pound. *Pliny, Nat. Hist. Lib. 12. Cap. 23.*

Hammoniac mollifies, heats, discusses, dissolves. Mixed in Collyriums it clears the Sight, and takes off the Itching, Specks, and Albugines of the Eyes, easeth the Tooth-ach, especially if burnt. Drank, it is good for the Asthma, Pleurisy, Infirmities of the Lungs, Bladder, bloody Urine, Spleen, and Sciatica; and, prepared with an equal Quantity of Pitch, or Wax, and Oil of *Roses*, is a proper Medicine for the Joints and the Gout. Applied with Honey, it ripens Pani, draws out Corns, and mollifies Hardnesses. Prepared with Vinegar and *Cyprian* Wax, or Oil of *Roses*, it is very successfully applied to the Spleen; and with Vinegar, Oil, and a little Nitre, is effectual in Lassitudes, the Parts being thoroughly anointed therewith. *Idem, Lib. 24. Cap. 6.*

Directions for the Management of Gum Ammoniac in Plaisters.

Ammoniac is put in when the Boiling is half over. If the Plaister is prepared for bleeding Wounds, the *Ammoniac* is to be macerated in Wine or Vinegar. If it be a soft Plaister, such as is prepared for the Anus, levigate the Gum in Water, and add it to the other Ingredients, after they are boiled. *Oribasius from Antyllus, Synop. Lib. 2. Cap. 61.*

Ammoniac is to be added in the midst of the Boiling, and if it can be pounded and sifted, put in the finest Powder; if not, let it be macerated in some Liquor, as Wine and Vinegar, if it be to make a Plaister for bleeding Wounds; if for Strumæ or Fistulas, with Vinegar only; if it be for a soft Plaister, such as is prepared for the Anus, let it be in Water, and poured to the rest when they are cooled, to prevent an Effervescence, and then boil them again together. *Aetius, Tetr. 4. Serm. 2. Cap. 25.*

Gum Ammoniac is thus distinguished amongst the Moderns: *AMMONIACUM*, *Offic. C. B. Pin. 494.* *Rail Hist. 2. 1844.* *Chomel. Plant. Usu. 182. Math. 2. 803.* *Ammoniacum*, *Mill. Bot. Offic. 30.* *Gummi Ammoniacum*, *Schrod. 4. 184.* *Gum Ammoniacum*, *Park. Theat. 1544.* *Ger. 898.* *Emac. 1056.* *Dale.*

AMMONIACUM is so called, because the Plant which produced it, was supposed to grow about the Temple of *Jupiter Ammon* in *Libya*. It is a Gum brought to us from *Turkey* and *India*, and is thought to be got from a Species of *Ferula*, there being often Seeds and Pieces of a ferulaceous Plant found amongst it. The best is that which is in little Lumps, yellowish on the Outside, and white within, apt to clog together, free from Dross, and easily dissoluble.

This Gum is opening, attenuating and cleansing, good to clear the Lungs of viscid Phlegm and Stuffings; and therefore of great Service in Asthmas, and Shortness of Breath; as also in nervous, hysteric, and hypochondriac Disorders; outwardly applied, it is suppurating, ripening, and dissolving, and good for hard Swellings, and scrophulous Tumors. Official Preparations from it, are *Pilule de Ammoniac magistrales*, and *Emplastrum ex Ammoniaco*. *Miller Bot. Off.*

This Gum contains Plenty of essential or volatile Oil, some Phlegm and Earth.

It resolves, digests, and is aperitive; proper for Hardness of the Spleen, Liver, and Mesentery; opens Obstructions, provokes the Menstrues, and is used both internally and externally. *Lemery de Drogues.*

Geoffroy adds it as a good Emmenagogue, when given from a Scruple to half a Dram; and is very proper to be mixed with Preparations of Steel, and Flowers of *Sal Ammoniac*, in Pills or Boles. *Geoffroy.*

Preparations of Gum Ammoniac.

Pilule de Ammoniac Magistrales: Magistral Pills of *Ammoniacum*.

Take of *Gum Ammoniacum*, prepared with the Vinegar of Squills, two Ounces; of *Succotrine Aloes*, one Ounce and

an half; of Myrrh, Mastich, and Benjamin, each half an Ounce; of Saffron, and Salt of Wormwood, each two Drams; of Syrup of Wormwood, a sufficient Quantity to make them into a Mass for Pills.

These were not received into any of the Dispensatories of the College before, but seem to be taken from the *Augustane Dispensatory*, where they are ascrib'd to *Quercetan* for their Author; the Variation here from that is very little. *Zwelfer* orders so much Vinegar to be used in the Dissolution of the Gums, as not to want any Syrup to bring it to a due Consistence. He also greatly blames the Lixivial Salt in this Composition, not only as foreign to the Intention of the Whole, but because it spoils its due Consistence for Pills, by taking away its Tenacity, and making it crumble, as all such Salts will do, to adhesive Substances. This Composition is given by *Scroder*; much in the same manner as it is continued here.

Emplastrum ex Ammoniaco. The Ammoniacum Plaister.

Take of the strained Gum Ammoniacum, six Ounces; of yellow Wax, and Resin, each five Ounces; of the simple Melilot Plaister, Ointment of Marshmallows, of the Oils of Bays and Orrice, and Venice Turpentine, each one Ounce and an half; of Goose-fat, one Ounce; of Sal Ammoniac, of Briony-root, and the Root of Orrice, each half an Ounce; of Galbanum, and Bdellium, each two Grains: Let them boil together, so as to make into a Plaister.

This hath passed through all the Editions of the *London Dispensatory*, without any great Alterations. It requires a good deal of Care and Skill to compound it well. All the things capable of melting should be so managed together and strained, and the other things sifted in, in fine Powder. But this is not much used, and but rarely made.

Lac Ammoniacum. Milk of Gum Ammoniac.

Take of the purest Gum Ammoniac, three Drams: Dissolve it in six Ounces of Hyssop-water cold, in a cold Mortar.

A Spoonful of this is to be taken frequently in Difficulties of Breathing. *Bates*.

Somewhat different from this is the *Lac Ammoniacum*, or *Emulsio Ammoniaca*, Ammoniac Milk, or Emulsion of *Quincy*.

Take fine Gum Ammoniac, three Drams: Dissolve in distill'd Vinegar, half an Ounce; Rhenish Wine, two Ounces; and Hyssop-water, four Ounces: Strain it for Use.

The Dose of this is a Spoonful three or four times a Day, according to the Exigency of Symptoms. It not only expectorates and relieves the Breath that way, but is also good in the Asthma Siccum, or Spasmodic Asthma, where common Pectorals avail nothing, as it has peculiar Influences upon the Nerves themselves.

Of Sal Ammoniac, from the Memoires of the Academy of Sciences.

There is not a Drug more common than Sal Ammoniac, and it is pretty surprising, that we do not exactly know from what Parts it comes, nor after what Manner it is made. Formerly we had it by the Way of *Venice*, which made it believ'd, that it came from thence, but now we know the contrary. It comes from the *Levant*, and probably a great Part of it from *Egypt*; but we do not know from what Province of the *Levant*, nor from what Part of *Egypt*.

Every Chymist knows, that it is an urinous volatile Salt penetrated by an Acid, and he knows how to imitate it. For this there are different Processes, of which *M. Geoffroy* the younger has given a particular Account. 'Tis usual to put one Part of common Salt to five Parts of Urine; most add thereto half a Part of Soot. *Mr. Lemery*, and the late *Mr. Homberg*, put no Soot. This Mixture being put in a Vessel, there is sublimed a white, rarefy'd, farinaceous Substance, of a loose and brittle Contexture, which is the Sal Ammoniac. The Matter which rises by Sublimation under that Form, they call Flowers. But *M. Lemery* asserts, that this is not the Way of making Sal Ammoniac in the Places from whence it comes.

It is form'd into round flat Cakes larger than an ordinary Plate, and three or four Fingers thick, consisting of Crystals like Columns, which are dispos'd in the Direction of its Thickness. This Figure and Disposition are manifestly those of a saline Matter infus'd in Water, and after Evaporation crystallized, and remaining at the Bottom of the Vessel, where it assumes its Figure, which is directly contrary to Sublimation. Besides, the Sal Ammoniac which we make is not dispos'd to take the Figure of the Vessel into which it is elevated,

because it is in farinaceous Flowers, which have very little Cohesion; whereas the Cakes which are sent to us are very hard and compact. In short, if Sal Ammoniac were made in the *Levant* as it is made here in our Furnaces, a vast Quantity of Salt, of urinous Matters, of Wood, Coals, Utensils, and Workmen, would be necessary; and all this, added to the Charge of transporting it, would make this Commodity, which is dispersed over all *Europe*, very dear; whereas it is sold at a moderate Price. For this last Reason *M. Lemery* believes, that Sal Ammoniac is made in the *Levant* with as little Labour and Cost, as Salt in our Salt-marshes, which is as much as to say, that it is made by a simple Evaporation preceded by some Lotions, which serve to purify the Matter. It is possible, that there may be Mines of Sal Ammoniac, as well as Sal-Gem; and there is found some Sal Ammoniac form'd in Mount *Pefirvus*. If there are Earths naturally impregnated with common Salt, and at the same time well water'd with the Urine of Animals, and the Heat of the Sun be very great, it is easy to conceive, that the Fermentation caused by the fervent Heat will unite the Acid of the common Salt with the urinous Salt, and so produce Sal Ammoniac. That of the Antients was probably formed after this manner in *Libya* and *Arabia*. But these Places are not frequented enough at present, so that there is no Care taken to collect the Sal Ammoniac. It was always certain, that several Earths, and old Plaister, have afforded Signs of Sal Ammoniac; and so much the more as these Earths were more sinoaky, and the Plaister the older. 'Tis true there is but little Salt to be got out of them, but there is a great Difference betwixt our Sun and that of *Egypt*. Perhaps too it is necessary, that the Earth, which yields plenty of Sal Ammoniac, should be barren, and incapable of producing any Plants which might attract that Salt for their Nourishment. This last Thought gave Occasion to a Notion of *M. Lemery* for making this Salt common in any Country; which is, that it may be extracted from Plants: Some Plants in these Parts are; without all Question, full of it; others are replete with Vitriol or Saltpetre, and, in a Word, with all the Kinds of concrete Salts.

Whatever Truth there may be in these different Conjectures, 'tis very certain, that in those Places whence we have the Sal Ammoniac, the Materials of which it is made must be very plentiful; and it is more than probable, that if it be made by Art, the Operation is very simple and easy. *Hist. de l'Acad. Roy. des Scienc.* 1716.

Of all known Substances there is not one, in my Opinion, that affords so much volatile Salt in a Body as Sal Ammoniac. They mix this Salt with Salt of Tartar, or with Lime, and distilling them with a moderate Fire, extract thence, as every one knows, the Spirit, and the volatile Salt; for the Lime, or the Salt of Tartar, detaining the acid Part of the Sal Ammoniac, give Room for the volatile Part to disengage itself, and to be sublimed. Fifteen Ounces of Sal Ammoniac, mixed with twenty Ounces of Salt of Tartar, afford ten Ounces of volatile Salt, which are two thirds of the Sal Ammoniac analysed; besides which, they extract three Ounces and an half of Spirit. The Caput Mortuum weighs twenty Ounces and an half, that is, half an Ounce more than the Salt of Tartar which was used. Hence it appears very probable, that the three Ounces and half of the Spirit of Sal Ammoniac proceed partly from the Phlegm in the Salt of Tartar, which Phlegm dissolves as much as possible the volatile Salt of the Sal Ammoniac united with a very penetrating Sulphur; for it is not probable, that fifteen Ounces of Sal Ammoniac analysed contain but half an Ounce of Acid. The Salt of Tartar always retains a great deal of Phlegm. How dry soever it appears, it grows very humid; and if it be placed over the Fire in an iron Kettle, in order to be dry'd anew, and used quite hot as it comes off the Fire, before the Air has penetrated it, the volatile Spirit of the Sal Ammoniac can scarcely be disengag'd. *M. Tournesot, Mem. de l'Acad. Roy. des Scienc.* 1700.

Spirit of Wine poured on Spirit of Sal Ammoniac, or Spirit of Silk, immediately produces a very considerable saline Concretion, which in the latter is manifestly separated into thick Concretions of Salt; but in the Spirit of Sal Ammoniac the volatile Salt is extremely divided, so that it is somewhat difficult, at first Sight, to know whether it be a saline or sulphurous Mass: This gave Occasion to name it *Offa Helmontii*; but 'tis soon prov'd to be all saline, for it entirely dissolves by an Affusion of Water: It seems manifestly to discover itself by the intolerable Smell. *M. Tournesot, Memoires de l'Acad. Royal. des Sciences*, 1700.

Of all Salts Sal Ammoniac most intensely cools the Water in which it is dissolved, whose Coldness equals that of Water ready to freeze. And once indeed it happen'd, while I was dissolving a considerable Quantity of this Salt in Water, that some Drops fell out of the Matras in which I made the Dissolution, and froze, so that the Straw on which the glass Vessel was placed, being wet, stuck to it for some time: This was in the Summer, when the Weather was pretty hot.

The great Coldness of the Solution of Sal Ammoniac does not proceed from the Difficulty of dissolving it, for it is dissolved with more Ease than other Salt; and Sea-salt, whose Solution is difficult, and very slow, least of all cools its Dissolvent. It seems, on the contrary, as if the Readiness of the Dissolution were the Cause of that exceeding Cold.

Sal Ammoniac is known to consist of a sea Salt, and an urinous Salt, one very easy, the other very difficult to be dissolved.

Among cold Solutions may be reckon'd the Experiment made by the late M. *Homburg* before the Company, which serves to prove, that the Coldness of Sal Ammoniac is perform'd as follows:

They take a Pound of corrosive Sublimate, and a Pound of Sal Ammoniac; they pulverize them apart, and then mix the two Powders very carefully; after this they put this Mixture in a Matrafs, and pour upon it three Pints of distilled Vinegar. After well stirring it, the Mixture becomes so exceeding cold, that you can hardly hold the Vessel in your Hands for any considerable time in Summer. When M. *Homburg* made a great Quantity of this Mixture, it was sometimes frozen.

We see in this Experiment a greater Cold produc'd than by a Distillation of Sal Ammoniac in common Water; this Excess of Cold is caused by the corrosive Sublimate, which by itself is not at all, or very little, dissoluble in distilled Vinegar. Hence it happens, that the fluid Parts of the distilled Vinegar having readily penetrated the Parts of the Sal Ammoniac, and having already lost much of their Motion, coming afterwards to engage in the Pores of a Body which they cannot dissolve for want of sufficient Action, soon lose that little Activity which they had left, and fix themselves, if not all, at least the greatest Part of them; and this Inaction of the Liquid excites excessive Coldness.

If on a Mixture of four Ounces of Oil of Vitriol, and one Ounce of Sal Ammoniac, you cast a Spoonful of common Water, at the time when the Fermentation is at its Height, and the Cold the greatest, and the Thermometer descends quickest, the Fermentation ceases, and the Cold very speedily changes to a very considerable Heat, which considerably raises the Liquid in the Thermometer. *M. Geoffroy, Mem. de l'Acad. Roy. des Sciences, 1700.*

M. *Lemery* had a Salt taken from Mount *Vesuvius*, which they call natural Sal Ammoniac. It was of a compact Substance, pretty ponderous, and very white, the Inside crystalline; it would not attract much Humidity from the Air, had no Smell, was of an acrid saline Taste, and very like that of Sal Ammoniac. He made several Experiments with it; among the rest, he mix'd it with three times as much Spirit of Nitre, and made an Aqua Regia of it, exactly like what is made of the common Sal Ammoniac. He found it to have several Effects of Sal Ammoniac, and also of Sea-salt. He supposes that his Salt of *Vesuvius* is no other than a fossile Salt, which is dissolv'd by the Sea, and sublimed to the Top of the Mountain by subterraneous Fires. *Hist. de l'Acad. Roy. des Scienc. 1705.*

A Memoire address'd to the Academy concerning Sal Ammoniac, and by M. Lemere, Consul at Grand Cairo, June 24. 1719.

Concerning Sal Ammoniac, I shall observe, 1. The Matter. 2. The Vessels that contain it. 3. The Disposition of the Furnaces. 4. The Manner of working. And, 5. the Quantity and Use of that Salt.

1. The Matter is pure Soot, and nothing else; but such a Soot as is swept from Chimnies where they burn Turfs of the Dung of Animals sed with Straw, which is the common Fuel in this Country, where they have no Wood. These Turfs, which are impregnated with alkaline and urinous Salts, communicate to the Soot certain Properties which it could not be expected to receive from the Smoke of Wood and Coal, and yet are absolutely necessary for the Production of Sal Ammoniac.

2. The Vessels which contain the Matter are exactly of the Figure of Bombs. They are great round glass Bottles, a Foot and half in Diameter, with a Neck two Fingers in Height. They case over these Bottles with a fat Earth, and fill them with Soot to four Fingers short of their Neck, which continues void and open. They contain each about forty Pounds of Soot, which at the End of the Operation yield six Pounds of Sal Ammoniac. Soot of an extraordinary Quality affords above six Pounds; what is worst, affords least.

3. The Furnaces are built like our common Ovens, except that their Vaults open with four Clefs in a Row lengthwise; upon each Cleft are four Bottles, which are placed in such a manner, that the Bottom of the Bottle being sunk in, and exposed to the Action of its Flame, only the Neck of the Bottle remains exposed to the Air; the rest of the Cleft is stopped up, and well cemented. Every Furnace then contains sixteen

Bottles; and every great Laboratory consists of eight Furnaces, disposed in two Rooms, so that it employs at once a hundred and twenty-eight Bottles.

4. In each Furnace, for three Days and Nights together, there is kept up a constant Fire made of the Dung of Animals mix'd with Straw. The first Day the gross Phlegm of the Soot exhales in a thick Fume by the open Neck of the Bottle. The second, the acid and alkaline Salts, being sublimed, associate towards the Top of the Bottle, where they touch the Neck, and, uniting, coagulate. The third Day the Coagulation continues, depurates, and is perfected. In the mean time the Master makes a little Hole in the Side of each Bottle, a little below the Neck, to see if the Matter be bak'd enough, and if there be nothing more to be sublimed. After he has made his Observations, he stops the Hole carefully with the fat Earth, and opens it from time to time. At last, when the Work is brought to the Point at which it ought to stand, he takes away the Fire, breaks the Bottles, shakes off the Ashes from the Bottom, and takes the round, white, and transparent Mass, of the Thickness of three or four Fingers, that adheres to the Neck, which is what they call Sal Ammoniac.

5. In two Towns of *Delta*, near one another, a League from the City of *Munfoure*, there are twenty-five great Laboratories, and some small ones, which make every Year fifteen hundred or two thousand Quintals [Hundred] of Sal Ammoniac. In all *Egypt* besides there are but three Laboratories more, two of which are also in *Delta*, and one in *Grand Cairo*, which do not produce above twenty or thirty Quintals of this Salt.

Sal Ammoniac is principally used by Whiteners of copper Vessels, Goldsmiths, Casters of leaden Shot for Game, and is a noted Drug with the Chymists and Physicians. Father *Sicara*, a Missionary, and an Eye-witness, says they add a little Sea-salt and Urine of Beasts. *Mem. de l'Acad. Roy. des Sci. 1720.*

The Plague at *Marseilles* having interrupted all Commerce to the *Levant*, obliged us to have the Drugs we wanted from *Holland*, among which was the *Indian* Sal Ammoniac, imported by the *Dutch East-India* Company. This Sort is made in the Figure of a Sugar-loaf, with the Top cut off; the largest of these Loaves are nine Inches in Diameter at the Base, and three Inches and a Quarter at the Top, and eleven Inches and an half in Height. They are not one solid Mass, but hollow on the Inside towards the Base, and this Cavity forms a Cone seven Inches and an half in Diameter, and about five Inches and an half in Height.

It appears by the Largeness of these Loaves, compared with those of *Egypt*, that they work up this Salt in much greater Masses in the *Indies*; for these last weigh fourteen or fifteen Pounds, whereas the others weigh but four or five.

Their Consistence is nearly the same, which shews, that they are produc'd by a Sublimation not much different; and indeed the Difference lies only in the Figure which they take from the subliming Vessel. The *Indian* Loaf is made in the Shape of a Cone, and it appears to be adapted to the Vessel which contains the Matter, both at Top and by the Sides. There is also Reason to believe, that this Salt is sublim'd after this Form, as the most commodious for so heavy a Mass. We find, in subliming Sal Ammoniac in our Retorts, that it rises in the same manner along the Neck, and there disposes itself in the Form of a Cone.

From the Manner in which I conceive these Vessels are adjusted, it is easy to imagine how it is possible to work a Quantity of Matter in them sufficient to afford fourteen or fifteen Pounds of sublimed Salt; for one might fill the Retort several times during the Sublimation, by an Aperture made on Purpose at the Top, as it is in our tubulated Retorts.

The Loaves of Sal Ammoniac made in *Egypt* owe their Smallness to their being sublim'd to the very Top of the Vessel that contains the Matter, which is of a Capacity too much limited. The same also gives them the Figure of a Cup turn'd upside down, for that is the Shape of the Ball or Bomb in which they are sublim'd.

Another Advantage that arises from the Figure of the *Indian* Sal Ammoniac is, that its Superficies is cleaner, and freer from Impurities, because all the fuliginous Vapours, which rise during the Operation, have a freer Passage to the Top of the Cone, and are readily separated by cutting off that Top when the Loaves are formed.

Around the Circle which terminates the Loaves are the Marks of five or six Holes which were made during the Operation, by way of Precaution, to afford means for the Salt, in subliming, to arrive at the Top, and there solidly to condense, by letting out the rarefy'd Air and Fuliginosities, which might hinder the Sublimation.

The Vessels in which this Salt is sublim'd are of Glass; for I have found Bits of it sticking on the Surface of the Loaves, as I have observ'd them also on the common Sal Ammoniac.

The outer Surface of the *Indian* Sal Ammoniac consists of a solid Crust, five or six Lines thick in the strongest Part, and insensibly

insensibly diminishing to an Inch and ^{an} half from the Base, where it unites with that which immediately encompasseth the Hollow of the Loaf. Both the internal and external Crusts are composed of Laminæ, which are transparent, horizontal, and lie very close one upon another. The interior is the most transparent, as being most exposed to the Action of the Fire, which confounds two or three Laminæ together; but in proportion as these Laminæ are distant from the Crust, they lose of their Transparency, and 'tis easy to observe the Number of Strata which constitute the Body of the Loaf.

One may readily know by the Gradation of these Strata after what manner they are formed, and united together by the Sublimation. The first which arise stick to the Sides of the Vessel, where they are harden'd by the Heat of the Reverberatory which covers the subliming Vessel; they afterwards close and thicken by the Accession and Union of saline Laminæ. After this manner is formed the crystalline Crust which covers the whole Loaf on the Outside.

The saline Mass, which is elevated in a great Quantity by the Violence of the Fire, disposes itself all around this Crust like Needles; these are much obstructed in their closing and condensing by the Thickness of the Mass, which being considerably augmented covers the intermediate Laminæ from the Action of the Fire. At last the Point of the Cone is clos'd by the Quantity of Matter which sublimes very briskly; so that the Fire then acts with Vigour on the last Strata that were elevated, and presses and hardens them extremely. And this is what forms the interior Crust, and the void Space about the Centre of the sublim'd Cone. This Space takes also the Figure of a Cone, because the Fire drives the Matter with its utmost Force upwards, and disperses it on all Parts towards the Sides of the Vessel. As it is thinner, and lies closer towards the Base, a Cavity is form'd, which lessens continually as it rises towards the Top, where it ends in a Point, because the Parts could be remov'd no farther.

If you cut a Loaf of Sal Ammoniac in Quarters, you may reckon between the interior and exterior Crusts no less than seven or eight Strata of different Degrees of Density.

As the greatest Thickness is towards the Top of the Loaf, there is Reason for making Holes, as I said, in order to clear that Part, which would otherwise be filled too soon.

To make a Comparison between the *Indian* and *Egyptian* Sal Ammoniac, it appears, that they are of the same Composition; and as to their Qualities, and the Uses to which they are apply'd, there can be no great Difference between them.

That of the *Indies* has the Advantage of being pretty clean from Impurities on the Surface, and having only its Top of worse Alloy than the rest; so that upon the whole Mass there must be less waste than in the *Egyptian* Loaves, which are charged with more Impurities in proportion to their Bigness.

Having been already particular on the Composition of this Salt, I shall now speak of its Decomposition, and first give my Observations on the manner of taking from it the volatile urinous Salt, so well known by the Name of *English Salt*.

'Tis the same Salt which is the Basis of the Sal Volatile Oleosum of *Silvius*, and therefore was always known to the Chymists. It was not call'd *English Salt* because the *English* were the Inventors of it, but only because they made the Use of it more frequent, and, as I may say, brought it into Fashion. Indeed its penetrating, tho' not disagreeable, Smell; besides, its being corrected by different Perfumes, extracted from odoriferous Plants, whence it took their Names, as tho' it really proceeded from them; its dry Form, which render'd it the fitter to be carry'd in the Pocket in little Bottles; with its Use in Vapours and Paintings; brought it in Vogue among the *French*, who are Lovers of Novelties, and especially of what comes from foreign Countries.

In 1700. M. *Tournefort* published in the *Memoires* of this Academy, that it was possible from fifteen Ounces of Sal Ammoniac to extract ten Ounces of volatile Salt, besides three Ounces of Spirits; but I have found by working on the same Salt, that it contains a much greater Quantity, which I have found means to disclose, and to sublime in the Form of a Salt, hard, thick, and transparent; in Fact, I extract from one Pound of Sal Ammoniac above thirteen Ounces of volatile Salt in a dry Form, that is, above Three-fourths; whereas M. *Tournefort* from fifteen Ounces did not extract above Two-thirds, which yet is more than any Chymist did before him.

It passes for certain Matter of Fact, that Salt of Tartar and Sal Ammoniac, mixed together, emit an urinous Smell; but if you take care first to dry them well, there will neither urinous nor volatile Vapour exhale from them. The Humidity of the Air is enough to moisten the Salt of Tartar, and make it fit to act upon the Sal Ammoniac, which it is then known to do by its Smell. If you take care then to secure this Mixture under Covert from the Moisture of the Air, you may keep it fifteen Days in a Vessel well stopp'd, and yet no urinous Spirit shall fly off from it; so that to extract the volatile Salt of

a good Dryness from Sal Ammoniac, you must avoid as much as possible too much Humidity.

M. *Lemery* was in the Right to say, that Spirit of Wine was so far from dissolving the volatile Salt, that it contributed much to its Preservation, whereas Water did nothing but resolve it into Spirit. I don't say, that in order to extract the volatile Salt dry as it ought to be, we must absolutely reject every Kind of Humidity; for then we should obtain nothing but simple Flowers, which can never make a solid Mass.

The Method in which I best succeeded was as follows: First, I took Sal Ammoniac the most purify'd, and pulverized very fine; then I took some alkaline Salt, as Salt of Tartar, Salt of Ashes of old Lees of Wine burnt, or some other like it, which have been purify'd by Calcination, Lixivation, and Evaporation; after this I calcined it again, in order to take away its Humidity as much as possible; then I pulverized it, and pass'd it hot through a Sieve. I took care likewise to dry the Sal Ammoniac very well, even till it smok'd. I then weigh'd Part of it, and three times as much of alkaline Salt, while it is yet hot: In this State the two Salts can perfectly mix without discovering any Volatility; they are put into the Retort, which is stopp'd very carefully, and there left twenty-four Hours, without any Emanation from them, like what usually proceeds from a Mixture of Sal Ammoniac with Salt of Tartar. I pour into the Retort, for every Pound of Sal Ammoniac, two Ounces and an half of Spirit of Wine, taking care immediately to stop up the Retort very closely, to retain the volatile Salts, which are sure to fly off, as soon as the Humidity, which the Spirit of Wine brings with it, diffuses itself among the Salts.

It is advisable to leave the Whole in a sort of Digestion, tho' in the Cold, and to stir the Salts in the Retort, in order to make way for the Spirit of Wine to diffuse itself, to penetrate, as much as possible, the saline Parts, and to excite a sort of Fermentation. After twelve Hours of Digestion, I unstop the Retort, and adapt to it two Receivers, the first of which has an Aperture at each End, in order to preserve a Communication between the Retort and the second Receiver: The Joints are well luted; and while the Lute dries there is an additional Time for Digestion. Then you put Fire by Degrees, in order to make a very gentle Sublimation by the Heat of the Reverberatory. At first there exhales a little of the Spirit in Vapours, which it almost immediately condenses against the Surface of the first Receiver; what passes into the second remains liquid, and at last all the first Receiver becomes furnished with volatile Salt, which sticks firmly to its Surface in Form of a Crust, and is more or less thick in proportion to the Quantity of Salt which is sublimed.

When no more comes off, the Vessels are unluted, and a Separation is made of the Liquor contained in the last Receiver, and that which may perhaps remain in the first. The Whole together gives back very nearly as much Spirit of Wine as was used. All the volatile Salt takes a dry Form, very solid, except a small Portion of it, which appears like Snow, because found in the Receiver mix'd with Spirit of Wine. There remains yet some volatile Salt in this Spirit; for after some Days it deposits the same in the Form of Needles, as it happens in Crystallizations of Salts under the common Operations. And if this Liquor be again emptied in another Bottle, it will in Length of Time deposit still more Salt like solid Crystals of different Figures; but the first are very fine.

This Salt, as well as other volatile Salts, is capable of Rectification. The most convenient Method for all Sorts of volatile Salts is to rectify them in the same sort of glass Vessel, set in Balneo Mariæ, where the Heat is very gentle and equal; and, on that account, preferable to a Sand-heat.

In making this Rectification, it will be proper to mix with this Salt those essential Oils, with which we would have it perfumed, because by this Method none are communicated but the most subtil and most fragrant Parts.

The Method I have described is also the most proper to determine, to the greatest Nearness, how much of the volatile is contained in Sal Ammoniac, and the Portion of acid Salt, by which this volatile is retained. This will now appear, by comparing the Matter which I used, with the Product of my Operation.

I took three Pounds of alkaline Salt, one Pound of Sal Ammoniac, and two Ounces and a half of Spirit of Wine; the Whole made together a Mass of four Pounds two Ounces and a half.

From this I extracted, in a dry Form, thirteen Ounces and three Drams of volatile Salt, and one Ounce five Drams and a half of Spirit, besides one Ounce and half a Dram imb'd in the Papers, that I put about the Joints of the Vessel. This makes in all sixteen Ounces one Dram of volatile Salt, from which must be deducted two Ounces and a half of Spirit of Wine, which I used, and there will remain thirteen Ounces five Drams of volatile Matter, which one Pound of Sal Ammoniac yielded by my Operation.

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The Caput Mortuum, which remained in the Retort, weighed three Pounds one Ounce, tho' I had used but three Pounds of alkaline Salt for a Medium; hence I had Reason to conclude, that this Ounce of Overplus was the Weight of acid Salt contained in a Pound of Sal Ammoniac, and which separated from it, in order to unite with a fixed alkaline Salt. Now the sixteen Ounces one Dram of volatile Substance, found in the Receivers, with the three Pounds one Ounce, that remained in the Retort, make but four Pounds one Ounce and one Dram; and all the Matter which I used, weighed four Pounds two Ounces and a half.

Here then I fall one Ounce three Drams short of my Weight. A Waste which must needs arise from the volatile Matter that evaporated, the Loss of which I could not prevent with all my Precautions.

Adding this one Ounce three Drams, to the thirteen Ounces five Drams of volatile Salt, found as well in a dry Form as otherwise, the Sum is fifteen Ounces of volatile Salt sublimed by my Operation. I may then conclude, that in one Pound of Sal Ammoniac there are fifteen Ounces of volatile Salt, united and incorporated by Sublimation, and only one Ounce of acid Sea-salt. This great Quantity of volatile Matter contained in Sal Ammoniac, will perhaps appear a Paradox in Chymistry.

M. Tournefort, who went farther than others, extracted, as I observed, from fifteen Ounces of Sal Ammoniac, but ten Ounces of Salt, and three Ounces of Spirit, which could scarce contain above six Drams of volatile Salt. But besides his not extracting as much volatile Salt as he might have done by his own Method, for want of using a sufficient Quantity of Medium, he took no Account of what volatile Matter might be lost in the Operation.

It might be objected, that this extraordinary Quantity of volatile Salt which I extract from Sal Ammoniac, was not absolutely contained in it, and that it might possibly proceed from the alkaline Salt, which served as a Medium, and was partly volatilized in the Operation.

But since it is impossible to extract the Ammoniac volatile Salt, without an alkaline Medium, must only what is extracted by other Methods, tho' in less Quantities, pass for the *Sal volatile* of Ammoniac?

Besides, by verifying my Weights, in which I used the utmost Exactness, I found in the Retort the Weight of the Alkali, which I used for a Medium, and one Ounce over and above for the acid Salt, which might be contained in the Ammoniac. There is no Appearance then, that the alkaline Medium was volatilized, because in that Case I should have found the Weight diminished in the Residuum. I cannot think then, that any one will say, that this Diminution was supply'd by the acid Salt of the Ammoniac, which ought to be supposed more than an Ounce to the Pound, since M. Tournefort, who in his Operation extracted much less volatile Matter, found the Weight of the acid Salt to be but half an Ounce, which certainly is not enough for fifteen Ounces of Sal Ammoniac, as he was well convinced; accordingly I obtained almost twice as much from the same Quantity. It is half a Dram of acid Salt for an Ounce, and by the Observations which I have made, it does not appear, that any more can be separated.

For Proof hereof, the Calcination of my Mixture of Salt of Tartar with Sal Ammoniac, afforded me precisely the very Proportion of the same acid Salt, as I had found after Sublimation, as you shall see by what follows:

That I might take all manner of Precautions, I chose two Crucibles exactly alike, in each of which I put three Drams of Salt of Tartar, with one Dram of Sal Ammoniac, such as I had used in my Sublimation, and a proportionable Quantity of Spirit of Wine. I urg'd them with an open Fire, in order to force from them their volatile Salt. Upon weighing the Residuum, I found it, both in this and the other Crucible, augmented exactly three Grains.

On the other hand, I had put in a third Crucible six Drams of the same Salt of Tartar by itself; and after giving them the same Calcination as I did to the others, for it was done at the same Time, and by the same Fire, I found the Residuum diminished just three Grains, that is, a Grain and half for three Drams.

But in the Calcination before-mentioned, of the Mixture of Salt of Tartar with Sal Ammoniac, instead of diminishing a Grain and a half, I found it augmented by three Grains; therefore the Residuum of this Calcination is, in reality, augmented in Weight four Grains and a half.

Now these four Grains and a half can be no other than the Weight of the acid Salt contained in the Body of the Sal Ammoniac, of which it made exactly the sixteenth Part. I can assure you, that Sal Ammoniac is a Compound of such a Nature, that of sixteen Parts there is but one detained in the Medium, and the other fifteen consist of Volatiles, as I had already proved by my Sublimation.

I took but a small Quantity of Matter for Calcination, that I might have the Weight more exact; and the Residuum of this Operation agrees, you see, to the utmost Nicety, with the Weight produced by the Residuum of the Sublimation of a considerable Mass.

This Augmentation of Weight in the Intermedium proceeds from a Portion of the Acid of the Sea-salt contained in the Sal Ammoniac, since from the Residuum of this Calcination, we extract by Lotion a crystallized Salt of a cubic Figure, which is a Shape peculiar to the Crystals of Sea-salt.

If any one now should object, that this Sea Acid, which was mixed with the Ammoniac, might itself, in part, be volatilized, I shall appeal to my Observations, which assure me; that in analysing Sal Ammoniac, every thing becomes volatile, except a sixteenth Part, which is retained by the Medium. *M. Geoffroy, Cadet, Mem. de l'Acad. Roy. des Scienc. 1723.*

These are the Accounts we have of the Origins of the different Species of Sal Ammoniac. But it is scarcely credible, that so prodigious a Quantity of Soot, as to make fifteen hundred or two thousand Quintals a Year, can be furnished by one Country, especially *Egypt*, which is a very warm Country, and where they only use Fires for culinary Uses, and at their Bagnios.

We must therefore surely conclude, that the *Egyptians*, who make Sal Ammoniac, have had the Address to keep their Method of doing it a Secret from the *Europeans*; and that they make use of some other Ingredients besides Soot.

Very good Sal Ammoniac is certainly to be made without any Soot at all. For I am well informed, that at the Sal Ammoniac Works, carried on some Years ago at *Newcastle*, the Rule for making it was thus:

Take of the Bittern, that is, the Liquor which drains from common Salt whilst making, one Gallon; and of Urine, three Gallons; let them stand together forty-eight Hours to ferment, and subside; then draw off the clear Liquor, and evaporate in leaden Vessels to Crystallization. Sublime these Crystals, when dry, in proper Vessels, and a very good Sal Ammoniac will be produced.

I am farther informed, that from one hundred Weight of Salt made from the Bittern, commonly sold under the Name of *Epsom Salt*, and three Hogsheds of Urine, sixty-six Pounds of Sal Ammoniac may be procured.

From all these Accounts of Sal Ammoniac, it appears to be a neutral Salt, consisting of a volatile alkaline Salt, and an Acid. The Native seems to be thus generated: When Camels, or other Animals, deposit their Urine in the barren Sands of *Africa*, the Heat of the Sun, during the Day, makes all the Humidity evaporate; in the Night, the Acid of the Air is attracted by the alkaline urinous Salt, till it is perfectly neutraliz'd, and forms the ancient Sal Ammoniac, or Sal Cyreniacus, which would be wasted in Vegetation, if the Soil was not utterly barren.

In Imitation of this, all the different Sorts of Sal Ammoniac are made, by uniting an urinous Salt with some sort of Acid.

But it must be remark'd, that Sal Ammoniac is a very different Substance from most of the Preparations made from it; for as alkaline Salts are mixed with the crude Sal Ammoniac, they absorb the Acid, which renders the Sal Ammoniac neutral; and then the volatile urinous Salts, set free from the Acid, rise in Distillation.

Boerhaave's Character of Sal Ammoniac is, that it preserves all animal Substances from Putrefaction, and its Brine penetrates into the most intimate Parts, and is the noblest Aperient, Attenuant, Resolvent, Stimulant, Emetic, Sternutatory, Diaphoretic, Sudorific, Antiseptic, and Diuretic.

Processes upon Sal Ammoniac from Boerhaave. Sal Ammoniac is neither Acid nor Alkaline.

Into a clean Glass put some very pure *Sal Ammoniac*, dissolved in three times its Weight of the purest Water, and filtered till it becomes a limpid Brine, and heat it to an hundred Degrees. Into different Portions of this, pour successively Vinegar, Spirit of Nitre, and Spirit of Sea-salt, and there will not appear the least Sign of Effervescence, nor does the Liquor grow turbid. In the *Sal Ammoniac*, therefore, there is no *Alkali*. Upon pouring in Oil of Vitriol indeed, there arises some Fume, and some degree of Motion; but this is owing to another Property of it, which will be more conveniently explain'd hereafter; for whilst the Oil of Vitriol lays hold of the latent Alkali of the Salt, it renders the acid Spirit of the Sea-salt volatile. Upon the same Brine, in another Vessel, pour a fix'd Alkali, and there no Effervescence will be excited; but there immediately arises from it a very penetrating, volatile, alkaline Smell. This Salt, therefore, is neither alkaline nor acid.

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Sal Ammoniac agrees with the Salt of our Humours, because it causes no Effervescence, either with an Acid, or an Alkali, tho' upon the Effusion of a fixed Alkali, it presently gives out its volatile alkaline Part, with a very pungent Smell. Nor does this Salt act in the human Body, or any-where else, with an acid or alkaline Virtue, but with the more penetrating one of common Salt. That this is the Case, appears by all its Effects; but by this in particular, that if *Sal Ammoniac* is mixed either with Spirit of Nitre, or *Aqua fortis*, it will communicate to it a Power of dissolving Gold, or convert it into *Aqua Regia*, which nothing can effect but Fountain-salt, *Sal Gem*, and Sea-salt: In this respect, therefore, it is a semi-volatile Sea-salt.

Sal Ammoniac sublimed into Flowers.

Take some *Sal Ammoniac*, reduce it to Powder, dry it, and put a Pound of it into a Cucurbit made of *Hessian* Earth, and almost of a cylindrical Figure. Fix on a very large Head, and close the Joints with Clay and Sand work'd together in equal Quantities. Place them in a Sand Furnace in such a manner, that the Beak of the Alembic may decline a little downwards, that if any Water should come off first, it may run out of the Head into a Bottle applied to the Beak. Let the Cucurbit be covered with Sand, almost to the lowest Limb of the Neck of the Head, and let there be raised under it a Heat of a hundred and fifty Degrees, to be continued till all the Moisture is distilled into the Bottle. Then changing the Bottle, gradually increase the Fire till the Alembic begins to be clouded with a white snowy Substance, and keep it up in that Degree, without suffering it to diminish, for the Space of eight or ten Hours. Let all grow cold, remove the Sand, and take out the Cucurbit and Alembic very gently, lest the Salt in the Alembic should be shaken out. Lay the Cucurbit in an horizontal Position upon a Table; with a Knife take the Lute clean off; wipe off the Sand, Dust, and Lute from the Cucurbit and Alembic; and then whilst they continue in this Situation, very gently draw off the Alembic, and it will be full of a fine, light, sublimed, snowy Salt, of which too there will be a good deal upon the upper Rim of the Cucurbit. All this Salt being removed, and put into a very dry, clean, hot Glass, with a wide Mouth, you will find about the upper Part of the Cucurbit, a white, thick, dense, compact Crust, of the same Salt, but which did not ascend into the Cavity of the Head, but stopp'd and fix'd here. Take this off with the sharp Edge of a Knife, and put it into a Bottle as before. Then very gently turn the Cucurbit upside down over a clean Paper, and there will fall out a pretty deal of the first white Flowers, which dropped off in moving the Vessels, and which, if they are perfectly pure, may be added to the former. At the Bottom of the Cucurbit, there will then appear a few black, saline *Fæces*, which may be shook out, but are of no great Use, yielding only a bitter, black, sœculent Matter. When the first Part is pure by itself, it is called the true Flowers of *Sal Ammoniac*, the *Aquila alba Philosophorum*, and the *Aquila Ganymedem in cœlum Jovis rapient in sublime*. The other Salt, which was at the upper Part of the Cucurbit, goes by the Name of *Sublim'd*, or *Rectified Sal Ammoniac*. If the Flowers, or sublim'd Salt, are dissolved in Water, they excite Cold, like the Salt itself. If you dissolve them, heat the Solution, and mix Acids with it, there is no Effervescence produced, except upon pouring in Oil of Vitriol. Nor does it cause any Effervescence with a fix'd Alkali, but immediately emits such a Vapour, as is described above. If you repeat this Sublimation of *Sal Ammoniac*, it gradually rises with more and more Difficulty, till at last it becomes almost fixed, tho' it still retains its former Qualities.

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Here we have a Salt of the Nature of Sea-salt, but semi-volatile; for it is not so volatile as to rise with the Heat of boiling Water, nor yet so fixed as Sea-salt. When it is thus purified, it loses that Clearness which appeared, in some measure, in the common *Sal Ammoniac*. By Sublimation, it does not acquire an alkaline Quality, in which Particular, it differs from Salt of Urine; but it remains just as it was, only of a more beautiful Colour. It has this wonderful Property, that whilst it thus rises dry in a close Vessel, it carries up with it almost all fossile, vegetable, and animal Substances; and by this Sublimation, surprisingly attenuates them. Hence it is called the *Pistillum Chemicorum*, as the same Attenuation can scarcely be accomplished by any other means. And if these are sublimed with *Sal Ammoniac*, a considerable Number of times, they at last become fixed with it, and thus often give Rise to the

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finest Medicines, as *Paracelsus* found in Colcothar, rendered very pure by Water, and then rubbed with Sulphur, and sublimed with this Salt.

Sal Ammoniac with Quick-lime, yields a fiery Spirit.

Take some very dry Flowers of *Sal Ammoniac*, put them into a clean hot glass Cucurbit, and pour upon them an equal Quantity of Lime reduced to Powder, as expeditiously as possible, in a dry, hot, iron Mortar, taking care that the Flowers are well covered with the Lime. At the same time have by you a clean dry Alembic, properly fitted for this Purpose, so that the fine exhaling Corpuscles may be immediately confined; for the very Moment, that these two Bodies come to touch one another, though they were at Rest, and inodorous before, there instantly arises a Vapour from them, than which perhaps there is not one more acrid, or violent in Nature. Fixing on the Alembic then, and luting it close, distil this Mixture, with a gentle Sand Heat, into a Bottle, applied to the Beak of the Alembic, and you will by this means have a very small Quantity of a Liquor the most volatile and acrid of any yet known, though not alkaline. If you then increase your Fire to a considerable Degree, the *Sal Ammoniac* will not be sublim'd; but by means of the Lime, the whole Mixture will become fixed; and if it should be afterwards put into a Crucible, and urg'd with the strongest Fire, it will not leave the Vessel, and become volatile: But when it comes to be cold, if it happens to be broken in the Dark, whilst it continues dry, it will emit a Light like Phosphorus.

Dissolve some pure powder'd *Sal Ammoniac* in triple its Weight of Water; then take Quick-lime, triple the Weight of the *Sal Ammoniac*; put it into a large glass Cucurbit a little heated, and pour upon it the Brine of the *Sal Ammoniac*, and clap on your Alembic, and lute it as expeditiously as possible with a thick Lute, made of Linseed-flower, and apply a very large Receiver to be luted with the same. There will suddenly be excited a Heat, Aëstuation, and most violent Ebullition; diffusing an incoercible Spirit, which would burst the Vessels, unless the Lute a little gave way; for the *Impetus* of it is so great, that it hisses and blows like a Wind through the Lute, dispersing a Smell all round; and at the same time a Liquor in great Plenty, and with surprising Speed, distils into the Receiver. When this spontaneous Heat of the Mixture is abated, let the Vessels be luted closer, raise a little Fire under them, and gradually distil to a Dryness. Let the Spirit thus produced be stopped up very close in a Bottle, and kept under its proper Title. In the Bottom there will remain a new and surprising kind of Body, which being dried with a strong Fire, appears almost of a glassy Nature, but gradually pulls up in the Air, tho' it does not dissolve like *Sal Ammoniac*, but is resolv'd into sandy Grains.

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Here is another Instance of an Agreement betwixt the proper Salt of the human Body, and *Sal Ammoniac*; you see a Liquor produced from dry inodorous Bodies, that affects the Organs of Smelling, more than any thing else; you observe also the Generation of Spirits, which are vastly, and, as it were, spontaneously active, in the greatest Degree of Cold; and here you have a Spirit not alkaline, but extremely acrid, and next to Fire in Acrimony. It must be confess'd however, that if this Spirit, as it exhales through the Air, meets with a volatile Spirit of Nitre, they will in Conjunction produce white Fumes. This Process also furnishes us with a new Species of Phosphorus; and here you see a Fixation, in some measure, of *Sal Ammoniac*.

Sal Ammoniac, distill'd with a fix'd Alkali, yields alkaline Spirits, and a volatile alkaline Salt.

Take of the driest Flowers of *Sal Ammoniac*, ten Ounces; place them in a glass Retort, mix therewith of the purest dry Salt of Tartar, reduced to a fine Powder, three Ounces; and shake them well to mix them perfectly: Immediately there will arise a very acrid, alkaline Vapour, for which Reason you must immediately apply a large clean Receiver. Place the Retort in a Sand Furnace, and gradually raise the Fire to the greatest Degree. There will be sublimed a very pure, white, simple, volatile, alkaline Salt, which being impatient of Rest, will fly off as soon as exposed to the Air, and make its way out of Vessels, through almost every thing they are stopped with, except Glass. With all Acids, it causes a most violent Effervescence, and combines with them into a neutral Salt of a particular Kind, according to the Nature and Origin of the Acid. This Salt, on account of its prodigious fugacity,

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city, can scarcely be manag'd or restrain'd ; nor is it easy to take it out of the Receiver in a solid Form. At the Bottom of the Retort will remain a fix'd Salt, which cannot be sublim'd with the greatest Degree of Fire.

Or, 'To ten Ounces of the Flowers, add three Ounces of Salt of Tartar; pour thereon nine Ounces of Water, shake them, and distil them immediately through various Degrees of Heat, into a Receiver, accurately luted on to the Retort. Immediately a fine moist Vapour will ascend, which will be quickly congealed on the concave Surface of the Receiver, into a solid Salt, and will proceed in this manner every Moment. When the principal Part of the Salt is thus come over, it will begin to be dissolved by a Liquor less volatile, and more watery, than the former Salt. Then remove the Receiver, and applying another, urge the remaining Salt in the Bottom with a stronger Fire, till it becomes quite dry. This done, take the Liquor, and put it into the former Receiver, and shake it till the Salt is attenuated, and almost dissolved ; then put them into a clean glass Vial, which stop very close with a glass Stopple. By this means you will have a Salt at the Bottom, and a Liquor at the Top, which is a true, most saturated, volatile, alkaline Spirit: But if there remains no solid alkaline Salt at Bottom, it is a Sign that the Spirit is not very much saturated, but watery, and in a great many Experiments will not answer. At the Bottom of the Retort will be left a fixed Salt.

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The *Sal Ammoniac*, as soon as it comes in Contact with the fixed Alkali in this Operation, is, from the Disposition of its own Nature, and the Assistance of the Fire, divided into two Parts, perfectly distinct, though both saline ; one of which constitutes a very acrid, alkaline, igneous, volatile Salt, which is the purest that can be prepared by Art, and at the same time the most simple, and therefore reckoned the Standard of volatile Alcalis ; under which the other Kinds may be reduced, and accordingly distinguished. The true volatile alkaline Spirit of *Sal Ammoniac*, therefore, is a Water containing in it as much of the purest alkaline Salt as it is capable of dissolving. To this too, as their Head, may be refer'd all other volatile alkaline Spirits. No other volatile alkaline Salts or Spirits are so pure and simple as these, being all tainted with an Oil, on which account they act in a very different manner. But, in this Property, *Sal Ammoniac* agrees with the Salt of Urine ; for that Salt and Spirit cause a sudden and violent Effervescence with all Acids. If a Vessel, containing this Salt or Spirit, is left open, and another set by it, full of strong acid Spirit of Nitre, there is presently excited in the Air a pretty considerable Effervescence, arising from the Concurrence of the volatile Alkali, and Acid, exhaling from the Vessels. If this Salt is applied to the Skin, and so covered with a Pitch Plaster, that it cannot fly off, as soon as ever it comes to be heated, it causes an intolerable Pain, and produces the highest Inflammation, with a black Gangrene of the Part, so that no Poison acts with more Violence. Do those Physicians, therefore, act wisely in recommending this Salt or Spirit to be attracted, by full and free Smelling, to the olfactory Nerves, the *Membrana Pituitaria* of the Nose, and the extremely tender Vesicles of the Lungs ? A topical Inflammation and Corrosion seem, in such Cases, much to be feared. Both this Salt and Spirit become still more acrid and fiery, if they are sublimed again from a fresh, pure, dry Alkali. *Boerhaave's Chymistry*.

The dry Salt of this Process, is what we usually call

Sal Ammoniacum Volatile : Volatile Sal Ammoniac.

Some, instead of Salt of Tartar, put Lime ; and others Chalk, or common Whiting. It is used for Pocket Smelling Bottles ; but *Boerhaave*, as we see, with the greatest Appearance of Reason, condemns the Custom of smelling to these Salts, as highly pernicious. Some put Aromatics into the Retort, which gives it a more agreeable Smell. It is prescribed in malignant Fevers as a Sudorific, in the Form of a Bole, with other convenient Ingredients ; for it is not fit for Powders, its Volatility soon wasting it : In Pills it will ferment, and it does so in Boles ; but there it does not destroy the Form and Conveniency of taking. The Dose is from five Grains to ten.

Ten or twelve Grains of this Salt will saturate half an Ounce of distill'd Vinegar ; which, with some simple and compound Water, and a little Syrup, make a Draught not disagreeable, and very useful in Fevers.

The first Process, directed by the College to be made with Sal Ammoniac, is the

Flores Salis Ammoniaci : Flowers of Sal Ammoniac.

Equal Quantities of Sal Ammoniac, and common Salt, are

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decrepitated together, and then sublimed into Flowers, which are very volatile.

The Dose is from six to sixteen Grains.

The *Flores Salis Ammoniaci Martiales*, (chalybeated Flowers of Sal Ammoniac) are to be made thus :

Take of Sal Ammoniac, one Pound ; of the Filings of Steel, ten Ounces : Let them be rubbed together, and distilled in a Retort with a large Neck, in a reverberatory Fire raised by degrees. When the Vessel is cold, sweep out the sublimed Flowers, and keep them in a Bottle for Use. The Dose is from six to sixteen Grains.

These, thrown into *French Brandy*, or common Proof Spirit, make the *Tinctura Martis Myrsiciti*, as now directed by the College ; and the *Ens Veneris* is much the same thing, being usually Colcothar and Sal Ammoniac, sublimed together.

The *Spiritus Salis Ammoniaci*, " Spirit of Sal Ammoniac," is thus made :

Take of Salt of Tartar, and Sal Ammoniac, each three Pounds : Powder these separately, and when they are mixed, put them into a large Cucurbit, pouring upon them six or eight Pints of Water : Then distil in a Sand-heat, and the pure Spirit will come over, with a gentle Fire. If this Spirit be rectified in an higher Cucurbit, a most fine volatile Salt will sublime into the Receiver. The Dose is from ten to sixty Drops.

This is also directed various ways, but none easier and better than this : It is also made the Basis of many other medicated Spirits, described at large by some Writers, tho' none of them thought worth Insertion here, because quite out of Use.

Some, to add a greater Quickness of Scent, use Lime for Salt of Tartar, which in external Applications, particularly to the Nose in Swoonings, may be preferable to the other ; but in internal Uses cannot be so good. The latter may be known from the former, by its leaving upon the Vessel, in which it is kept, a white Coat. Some (it is said) make it likewise, for Cheapness sake, with Brine, Urine, and Lime ; and adding thereto a small Portion of a foetid Oil, which comes over in the making the *Spiritus Cornu Cervi per se*, they sell it for genuine Spirit of Hartshorn.

The Aqua Regia, with which so many Experiments are made, particularly in dissolving Gold, is from Sal Ammoniac and Nitre together ; tho' it is most expeditiously made, by digesting, in a Sand-heat, *Sal Ammoniac* in Spirit of Nitre, or the double Aqua-fortis, till it be dissolved ; but it hath so little Concern in Medicine, as not to require any farther Notice here.

But the most celebrated Medicine now in the Shops, from this Foundation, is the

Spiritus Salis Volatilis Oleosus : The oily Spirit of volatile Salt, generally called Sal Volatile :

Which is thus prepared :

Take of Cinnamon two Ounces ; of Mace half an Ounce ; of Cloves one Dram ; of Citron-peel one Ounce and an half ; of Sal Ammoniac, and Salt of Tartar, each four Ounces ; of Spirit of Wine twelve Ounces : Mix and distil in a Sand-heat. The Dose is from ten to a hundred Drops, or more.

This is now become one of the most common Medicines of the Kind ; its Invention is not older than *Sylvius de la Boc*, to whom it is ascribed. But though Sal Ammoniac, and a lixivial Salt, are the principal Ingredients, yet the Aromatics are so much varied at Pleasure, that very few make it alike : However, now a Standard is given by proper Authority, it ought to be kept to ; that a Physician may know what to trust to, when he prescribes it.

But one great Rule, in a Composition of this Intention, seems not to be duly attended to ; and that is, in Choice of Aromatics, which should be not only fragrant, but light and volatile in their natural Production ; so that such things as the *Marum Syriacum*, Marjoram, Thyme, and the like, seem more suitable Ingredients than Cloves or Mace, whose Oils are too heavy, gross, and adhesive, to rise so conveniently with the Sal Ammoniac. The Goodness of this Medicine is judged by its Fragrancy and Quickness of Scent, and Softness to the Taste ; for these Properties arise from the Goodness of the Aromatics, and the volatile Salts being covered with them ; whereas when they are not good, or not in a sufficient Quantity, the Composition will be urinous, and very disagreeably pungent to the Taste. In making this Medicine with a slow and easy Heat, a great deal of Salt will harden to the Top of the Receiver, which may be scraped off, and preserved for Smelling-bottles, or any internal Uses, where Medicines of such Properties are required ;

required; it is both much less caustic, and more cardiac, than the volatile Salt of Hartshorn, which is commonly directed.

The Spirit of Sal Ammoniac is now but little used internally, because the Gratefulness of the Sal Volatile Oleosum gains it the Preference; and this is commonly ordered with Spirit of Lavender, or of Castor, to be dosed out by Drops into ordinary Liquors: And when this is sent in Draughts or Juleps to a Patient, a very necessary Caution is to be observed, which is, not to order it in Company with any red Syrups or Tinctures; because it changes them into a very unsightly green Colour.

These Things are sometimes externally directed in Embrocations; they suit also well enough in unctuous Substances, provided too much Warmth is not given them before they are used, because that will exhale them; and this way they give a more penetrating Quality to Compositions, and agree well with warm Discutients, and such things as are commonly prescribed in Pleuritic and such-like Affections. *London Dispensatory. Quincy's Prelections.*

The *Spiritus Salis Ammoniaci succinatus*, "Spirit of Sal Ammoniac, with Amber," is made several Ways.

Either digest a Pound of Spirit of Sal Ammoniac with an Ounce of Amber; or,

Take Sal Ammoniac, and Amber, each five Ounces; Salt of Tartar, six Ounces; Spirit of Wine, and Spring-water, each eight Ounces.

This is reckoned to be cephalic, and exceedingly well suited to all nervous Indispositions; but it is something unpleasant. Its Dose is from ten Drops to forty.

AMMONIS CORNU, *Ammon's Horn*. A Fossile of an Ash-colour, found in the Shape of a Ram's Horn. *Rulandus* enumerates fifteen Sorts of it.

AMMONITRUM, ἀμμωνίτης, from ἀμμος, Sand, and νίτρον, Nitre, that is, in *Pliny's* Sense, the lixivious Salt of a burnt Vegetable. *Pliny*.

This is a Mass compounded of Sand, and a fixed alkaline Salt, for making Glafs. The Moderns call it *Frit*.

AMMONIUS, a Surgeon surnamed *Lithotomus*, from his inventing a way to cut the Stone, when it was too big to be extracted without Danger of a Rupture of the Neck of the Bladder. His Method was to grapple the Stone, with a Hook, so firmly as to hold it fast, that it might not roll back; then he took a Steel Instrument, of a moderate Thickness, slender, but blunt in its Fore-part; and bringing the Stone to bear in a right Posture, cleft it with a Stroke of his Instrument, being very cautious of wounding the Bladder, either by the Instrument or splintered Stone. *Celsus, Lib. 7. Cap. 26.*

AMMONII COLLYRIUM, otherwise called COLLYRIUM HYGIDIUM.

Take of Cadmia, washed, sixteen Drams; Cerufs, washed, a like Quantity; Castor, six Drams; *Indian Nard*, four Drams; Stibium, washed, forty Drams; burnt Copper, washed, fifteen Drams; Roses, twenty Drams; Squama *Æris* burnt, five Drams; Aloes, six Drams; Cassia, four Drams; Myrrh, six Drams; *Indian Thorn*, three Drams; the Lapis Schistus, four Drams and a half; Saffron, six Drams; Lead, burnt and washed, eight Drams and a half; Opium, three Drams; Acacia, forty Drams; Gum Arabic, forty Drams. Make them up with Water: It is one of the most celebrated Remedies.

It is proper to be used in the Beginning of a Cataract, or Inflammation, and for all kinds of Exulcerations and Purulencies of the Eyes; for a *Confusio* and *Chemosis* (see the Words); for a Dislocation of the Bulb of the Eye; for an inveterate Myoresthala, (a growing of the Tunica uvea over the Sight) and Staphyloma (see the Word); it deterges, incarnates, and heals an Unguis (a Collection of Pus in the Black of the Eye, in the Figure of a Man's Nail). It is an excellent Promoter of Sleep to such Persons as, through Pain of the Head or Eyes, or some other Cause, want that Benefit, supplying the Place of a Paregoric Medicine. It may be used with an Egg, or with Milk, or Water, and made thinner or thicker, as the Patient is more or less delicate of Sensation. *Actius, Tetr. 2. Serm. 4. Cap. 113.*

AMNA ALCALIZATA, in the Phrase of *Paracelsus*, is Water which runs through Lime-stone, and is consequently impregnated with some of its Particles. *Paracelsus de Tartaro Tractatus C. 2.*

Rulandus calls it AMNIS ALCALISATUS.

AMNIOS. The internal Membrane which surrounds the Fœtus. It will be impossible to form a competent Idea of the Amnios, without knowing at the same time the Nature of the other Membranes, and their contained Fluids. For, as *Needham* observes, these Subjects are so closely connected, that it would be difficult to treat of them separately: For who could give an Account of the Membranes, or discourse of their Uses, with any manner of Accuracy, if he were not to describe the

Humours contained in them? Or, what better Way can there be to discover the Nature of the Humours, than by a diligent Examination into the Figures, the Vessels, and Connexion of the Membranes?

The Membranes are very different in various Animals, in Number, Figure, and Situation. In some there are three, in others four, and in an Egg we can reckon six; for after we have opened the outer Membrane, which adheres to the Shell at the blunt End of the Egg, we find another of the same Colour and Consistence, which subtends the Cavity, and very freightly embraces the Egg: I doubted a long time whether this latter Membrane was a new one, or a Duplicature of the first; but, at last, I found it was a new one, and might be separated throughout the whole Compass of the Egg. This then being cautiously removed, there immediately appears the Membrane of the thinner Albumen, conspicuous for its Veins and Arteries, if inspected some Days after Incubation. This Liquor being let out, we meet with the Membrane of the Colliquamentum, or Amnios of the Chick, in which the Chick swims. After this come the thicker Albumen, and the Vitellus, invested with their peculiar Membranes; these are under the Chick, in the Bottom of the Egg.

In cotyledoniferous Animals, which may more properly be called glanduliferous, there are three Membranes; and so there are in Sows and Mares: The same Number are in placentiferous Females, and, among the rest, in Woman. All these have only two Humours, which gave Occasion to the great *Harvey* to mistake, in asserting, that the Allantois was nowhere to be found. For my own Part, after I have taken off the Chorion, which immediately contains no Humour, but serves for the Distribution of the Vessels, and for supporting and strengthening the other Membranes, I immediately find what may very truly be called an Allantois; and I have often taken it from the Fœtus of Cows, Deer, Swine, and Sheep; and blowing it up like a Gut, have hung it up in my Chamber, to be seen and handled at Pleasure. It was therefore owing to the Imperfection of human Nature, that so great a Man should labour to banish out of all Belief, and the Nature of Things, a Membrane that was viewed, described, and delineated by so many Anatomists. As for *Liverhard*, besides his being prejudiced by the Authority of *Harvey*, he had the Misfortune to be concerned with none but those little Animals called Cones; in which, tho' there are four Membranes, as will by-and-by appear, yet they do not readily offer themselves to Sight, except to those who, from beholding the like in larger Creatures, know where to look for them.

In Dogs, Cats, Cones, and perhaps other placentiferous Creatures, there are four Membranes, and three Humours; for I have always hitherto observed, that the Number of Membranes exceeds that of Humours.

In our Account of these Matters, we shall begin with Sheep and Oxen, and other glanduliferous Creatures, as well because the Art itself took its Origin from them, as appears by the Writings of the Antients; and thence the Names were transferred to other Animals, by too strained a Catachresis, as because they are most easily procured, and especially near Shambles, always ready for Inspection.

In these Animals then, we first meet with the Chorion, which, when you have separated the red fleshy Caruncles from the uterine Glandules, appears all over variegated with these Caruncles as with so many Roses. Besides, a great Part of the umbilical Vessels spread themselves over it, and are continued to the before-mentioned Caruncles. These Vessels also scatter Plenty of Capillaries throughout the Chorion, which probably imbibe the Humour, at least secondarily, and for the proper Use of the Chorion; that is, to maintain its Softness and Humidity, without which it would adhere to the Uterus. For tho' in Cows and Ewes, those little Placentas are copiously distributed all over the Membrane, yet, in Does, there are commonly but ten; that is, five in each Wing, which are situated in the lower and narrower Part of it; tho' there are considerable Branches of Veins and Arteries, which proceed as far as the opposite Region of Conception; where, by their Structure, Situation, and Magnitude, they seem to imbibe a Humour. And, in Sows, the Chorion does the Office of the Placentula before-mentioned, during the whole time of Gestation; for there appears no other way of conveying nutritious Juice to the Fœtus. In Mares also, during the first Month, this Membrane is single, and serves for the aforesaid Uses; but in Process of Time, it considerably thickens, and forms fleshy Caruncles of the Size of a small Pea; but these, at last, run together, and are conjoined in such a manner, that the whole Chorion seems to have degenerated into a very broad Placenta, interwoven with Millions of Vessels, which send forth innumerable Capillaries to the internal Membrane of the Uterus, which however remains single. In a Woman also this Membrane is, at first, without a Placenta, which yet soon grows, and connects the Conception to the Womb: When the Placenta is grown, the Chorion itself is best discovered by slightly wounding it with the Hand near the Placenta, and then pulling it off with

with the Fingers; it will appear thick, soft, and interspersed with small Veins; but all the larger Vessels end in the Placentas. The Case is the same in Conies; in Dogs and Cats the Fœtus is divided in the Middle, as it were with a Girdle, in such a manner that we must look for the Chorion on both Sides of it, as tho' it were double.

The Use of the Chorion is easily understood, from what has been said: It sustains the umbilical Vessels, and the Caruncles aforesaid, in glanduliferous Animals; and both in these, as well as others who are without Glandules, imbibes a nutritious Juice, in these immediately, in the other secundarily. But in the placentiferous, almost all the greater Vessels direct their Course to the Placenta, and only some minute Vessels disperse themselves in this Membrane; so that the alimentary Liquor it may possibly receive, seems only sufficient for its own Moistening and Nourishment. However, the Chorion, both in these and other sorts of Animals, includes within its Compass all the other Membranes, as well as the Humours, and the Fœtus itself, and defends them; but contains no Liquor of its own within its Cavity.

In stripping off this Membrane, you are to be very cautious, that you do not wound the subjacent Membranes. The safest way is to take hold of one of the Caruncles with your Hand, and, lifting it up, cut a small Hole in the adjacent Chorion, large enough to receive two Fingers; then, laying aside your Knife, tear it gently by degrees with your Fingers; carefully observing, all the while, whether any thing of a Duplicature, or a very fine whitish Membrane, offers itself, tho' in an obscure manner, to your Sight; for if there does, it is the Allantois, which it highly concerns you to preserve entire: But when you have proceeded a little farther, it will appear turgid with its own Humour, and render the Operation more easy; but if any Liquor should happen to run out, you may be sure, that there is a Rupture, either of this Membrane, or the Amnios. The Chorion being thus skilfully taken off, the Allantois is, at the same time, in a manner, separated from the Amnios, which may easily be perfected whenever you please, if you have divided them as far as the Cord; but there it is to be left alone with its Urine, till the Amnios and Fœtus being opened, you may have Access to the Bladder.

The Amnios is interspersed with Vessels, almost in the same manner as the Chorion, and receives all the umbilical Branches, which do not pass into the Chorion. This being opened, shews you the Liquor in which the Fœtus swims; which our famous *Harvey* proved to be absolutely nutritious, both from its Taste and Consistence, and from its being the same as is found in the Ventricle of an Embryo. This Membrane is often over-run with pinguious Concretions, which seem to be gathered from the Liquor within it; and, in a Cow, the Cord of the Embryo near its Root swells with a sort of glandulous Asperities. This is meant of Females with Cotyledons; as for the placentiferous, there is another Method of Dissection, of which by-and-by.

We are now come to the Fœtus; and upon opening the Abdomen, we may take a View of the Umbilical Vessels. Here we shall only take Occasion to observe, that the Bladder, being wounded, discharges the same Liquor, in every respect, as is contained in the Allantois; and you may, at pleasure, force this Liquor, by Pressure, from the Allantois into the Bladder; or by fitting a Pipe to the Bladder, blow into the Allantois; nay, even before the Fœtus is opened, if you raise the Membrane a little, and squeeze it in your Hand, it will emit the Humour through the Bladder and the Penis; which is enough to prove the Communication between them.

The Allantois deserves a particular Notice, as well because its Existence has been hitherto controverted, as for its remarkable Variety in different Animals. For in the glanduliferous Kinds, as Ewes, Cows, Does, it grows to the End of the Cord, and seems to be a sort of an Elongation and Dilatation of the Urachus, of the Figure of a Gut, and reaching, on both Sides, to the Extremities of the Uterus within the Chorion, and filling the Cornua. In Sows, which are multiparous, and have an Egg appointed for each Fœtus, this Membrane reaches to the Extremities of that Egg, and, on both Sides, is shaped like a Gut; whence it took its Name *Allantois*, or *Allantoides*.

In Mares the Case is somewhat different; for this Membrane, in them, is every-where connected with the Chorion, and contains, within itself, the whole Fœtus with the Amnios: It shews plain Marks of an Urachus, which seems rather to proceed from the Amnios, and to be a sort of Duplicature of it, folded outward, as far as the Bladder; to which it will easily transmit a Breath, or the Point of a Bodkin. You must look for its Perforation in the Cord, which twisting itself to a remarkable Degree, is, Part of it, dispersed over the Amnios; the rest, united, passes through this Cavity, and is, at last, inserted in the Chorion, and there divided into innumerable little Branches, by which the Chorion is so increased in Thickness, that it seems to deserve the Name of a Placenta. In this Animal also, as well as in glanduliferous Kinds, the frequent Concretions which swim in the Liquor of this Membrane, are worth Observation, which seem, at first Sight, to be Fat, or little Bits of Flesh;

but, pulled abroad with the Fingers, are dilated into a sort of membranaceous Substance, and seem to be Coagulations of a kind of soft and glutinous Urine.

We proceed now to placentiferous Animals, in whom the urinary Membrane is of quite another Figure. In these Kinds then, the urinary Membrane varies according to the Animal: In a Woman it surrounds the whole Fœtus, almost after the same manner as in a Mare, growing every-where to the Chorion: In Dogs and Cats it is the same; but its Duplicature, near the Divarication of the Cord, constitutes a Cavity between it and the Girdle, which is designed for the fourth Membrane. Indeed, I judge a Mare to be a middle sort of Animal, between placentiferous and glanduliferous Animals; she agrees with the former, in that the Urine quite surrounds the Fœtus, and tho' there be no Placenta in the Beginning, yet, in Process of Time, there grows one to such Dimensions as to embrace the whole Fœtus: And, indeed, that thick Chorion almost deserves the Name of Placenta, barely on account of the Veins, which are dispersed over its Substance in as plentiful a manner as in the human Placenta. To this I add, that there is nothing which answers to it on the Part of the Dam, as is usual in the glanduliferous Kinds. However, this it has in common with those of ruminating Creatures, namely, to be connected to the Uterus by carneous Ligaments; and that this Thickness is not considerable before the sixth Month. But this, by this way. The Allantois in Conies is of another Figure, that is to say, pyramidal, and has a Placenta for a Base; whence it grows narrower by degrees, till it comes to the first Parting of the Umbilical Vessels, where it ends in the Urachus; for the larger Membrane, in which the Amnios swims, does not seem to be the urinary, as we shall see by-and-by.

It may be inquired, concerning this Membrane described in placentiferous Animals, whether it be really urinary, since the Perforation of the Urachus is less manifest in them, than in the glanduliferous Kinds. And as to the human Conception, I freely own, that I could never discover the least Sign of such a Canal in the Cord, by any transverse or oblique Section, or torturing it a thousand Ways. But the very same things happen in a Dog, where, tho' I could by no means find out the Duct, I was convince'd, that there was a Passage, by frequently transmitting Wind through the same. I confess, that I could never obtain a human Fœtus inclosed in the Uterus, tho' I have dissected the Secundines very frequently, and not a few Embryo's, where I don't, in the least, doubt but blowing would have succeeded as well as in the others. For I look upon, as Demonstration, that Argument of *Spigelius*, which asserts, that Man must needs be furnished with an Urachus and Allantois, for this Reason, namely, that he is under an equal Necessity with other Animals, of having a Repository for his Urine; this cannot be otherwise than true, as to all Animals provided with a Bladder.

But *Courvaux* has invented a pretty subtle Distinction, and imagines, that the Allantois belongs only to such Animals as have a large *Intestinum Cæcum*, because of the Compression of their Bladder, which he supposes insufficient to contain its Liquor, the Space being taken up by the Largeness of the *Cæcum Intestinum*; but in other Animals, where that Intestine is but small, there is no need of any such Membrane.

Now, I would advise *Courvaux* to look upon the Allantois once more, and to measure the Quantity of Liquor contained in it, where he may see whether the *Intestinum Cæcum*, even in Subjects where it is largest, be of Capacity sufficient to contain such a Collection of Waters. 'Tis certain, that the Allantois of a Cow, at the End of Gestation, contains some Gallons of Urine. Let him view the Bladder, either the human or that of a Dog, and consider well with himself, whether it be more distended in these than in other Animals: His Eyes will convince him of the contrary. Therefore if there be any Collection of Urine during the Time of Gestation, it is necessary, that there should be another Reservoir for it; and yet, in a Bitch, not only the *Cæcum* is very small, but the Colon is wanting, that the Bladder may have still farther room to swell, and does not require an auxiliary Membrane to discharge Part of its Office: But since we meet with an urinary Membrane, not only in these, but in other Animals, which have a large *Cæcum*, and a Colon, we have no Reason to believe, that their Presence or Absence has any Influence towards causing any Alteration in the Structure, either of the Bladder or Allantois. Other Arguments may be drawn from the Liquor itself, which shall be reserved for another Place.

To conclude this Head, I shall add, that it is peculiar to this Membrane to have neither Vein nor Artery, that is visible, in its Substance: This I lay down as its Characteristic; for these Vessels disperse themselves either into the Amnios or the Chorion, having nothing to do with this Membrane, or at least are inserted into the Placenta, or Glandules: And in a Mare, tho' some Thousands of Vessels, both great and small, are seen creeping towards the Chorion, and imprint their Traces on it, not a single Branch can we discern to be directed to the Allantois, or there to end; but whatever it contains, is acquired from the Bladder. And tho' in the Fœtus of a Cow, it is here and there interspersed

interspersed with a few Capillaries near the Urachus and the Cord, this does not always happen, nor do they ever proceed the Breadth of three Fingers, but vanish in a very short Space. The great *Harvey* writes, that this Liquor belongs to the Chorion, and is, at first, a hundred times the Quantity of the Liquor of the Amnios, but decreases by degrees. But I cannot forbear declaring, that I have observed the quite contrary, and know that this Liquor, which belongs to the Allantois, and not at all to the Chorion, increases every Day, and acquires a more and more urinous Colour, Smell, and Taste, to the very End of Gestation; at which time the Liquor of the Amnios, as he confesses, is almost consumed.

The Use of this Membrane is evident from the Premises, namely, that it is a Reservoir for the Urine; nor can it be of any other Service in an Embryo. But if any one be solicitous about the Nutriment of the Allantois, because I just now said, that it was destitute of Veins and Arteries, he must understand, that this is an Accident common to it, with many other Parts; for the same may be said of the outer Membrane of the Uterus, as well as of the like Membranes of the Intestines, the Stomach, and Œsophagus; as also of the Pleura, and the proper Integuments of the Muscles; which, tho' they have no conspicuous Veins, must be supposed to be furnished with Canals, reaching from the very Orifices of the Veins, since, when they are inflamed in Diseases, the Blood-vessels manifestly shew themselves; as, for Example, in a Pleurisy and Ophthalmy; and these Vessels furnish Nutriment enough for that peculiar Part, being not appointed for any public Office, distinct from the same.

Having finished the Description of the Allantois, it will be proper to take some Notice of another Membrane, which resembles it in Figure, but is appointed for a very different Use. You meet with it in Dogs and Cats, situated under the Girdle, near the Divarication of the Umbilical Cord, where the Vessels begin to separate, and to take their Course towards the Placenta: It stretches itself out in Length in a sort of Cavity, formed by other Membranes meeting there for that very Purpose, and is tied, or in a manner buttoned, to them at its Extremities, by a very white cartilaginous Ligament. As to its other Parts, it no-where closely adheres to the Sides of its Cavity, but hangs almost loose. In the Beginning of Gestation it is large, and full of Humour, containing more than all the rest of the Membranes taken together. It is very plentifully furnished with Veins and Arteries; but, in Process of Time, it decreases by degrees, till, being exhausted of all its Moisture, it becomes so exactly like the little Membrane in the Brain, called the Choroides, as to pass upon the Unwary for the same, when taken out. The Humour here reserved has nothing of Urine, but is something very noble, which is spent upon the Fœtus in the first Weeks, by means of peculiar Vessels: And this is observable of the Dog-kind, and many others, to whom Nature has added a Membrane for Services of the like Kind, tho' it be not always of the same Figure. For,

In a Coney this Membrane is large, and surrounds the whole Fœtus, almost in the same manner as the urinary Membrane in a Bitch; and, at last, forms a Cavity under the Placenta, which seems appointed for the Urine. 'Tis almost in the Form of a Half-moon, and, being inflated, resembles the human Kidney, both in Shape and Size: It is variegated with Vessels, which, if accurately traced, will be found not to meet in a Collection at the Placenta, but to descend to the Cord; and from thence, perforating the Abdomen, to proceed to the Mesentery.

But there is a Question, of no less Difficulty than the former, concerning the Ingress of the Humour into this Membrane, which coinciding with another like Difficulty, usually started about the Amnios, we shall treat of them both together.

Our Account of the Amnios has been almost anticipated in our Discourse on the Allantois, and needs no other Description than saying, that it belongs to all, as well oviparous as viviparous Animals, and is always supplied with Vessels from the Umbilicals; the Liquor it contains is nutritious, and sucked by the Embryo, as was said before. It remains only to inquire by what means it is convey'd thither, as into a Reservoir, in order to supply the future Necessities of the Fœtus; a Controversy sufficiently perplexed, and which *Harvey*, as *Courvoisier* writes, quite neglected; either because he saw too much Difficulty in it, or none at all. *Courvoisier* himself, and *Everhard*, account for it by a Filtration through the Pores of the Membranes, and tell us, there is a Transudation of the Humour, first into the Chorion, and from thence into the Amnios. But these learned Men should have considered, that there is not the least Humour to be found between the Chorion and Amnios; but whatever there is of liquid in these Parts, is all contained in the Allantois; and if there should be any Filtration from thence, through the Membrane of the Amnios, it is but reasonable, that there should be first a Collection of the same within the Chorion. This Argument is very well urged by *Wharton de Gland*, to which I will subjoin another, that shall amount to a plain Demonstration, as follows: In a Fœtus of the Horse-kind, the Urinary Membrane is every-where firmly connected to the Cho-

rior, and even contains in itself the whole Fœtus, with the Amnios, so that the Amnios swims in the Urine. I prove it to be Urine by the Smell, Colour, Taste, and its Communication with the Bladder by the Urachus. The Case is the same with respect to Dogs and Cats. Now I would ask of *Courvoisier* and *Everhard*, whether the nutritious Liquor must pass through the Urine, and so be mixed with it. If they will not grant this, there is scarce any other way but by the Umbilical Cord; for in the Instance alledged, all other ways of Filtration are excluded.

But as to the Umbilical Cord, it is doubted, whether this Humour be convey'd through its Veins into the Blood of the Embryo, and afterwards deposited by the Arteries in the Amnios; or, whether it descends by the Jelly-like Substance of the Cord, and distils through the minute Papillæ, or Asperities, into the Amnios. *Wharton* is for the latter way, which, indeed, seems very probable to one who considers the Fœtusses of the Cow-kind, in which there is a copious and thick Jelly, and whose Cord is turgid, with a kind of glandulous Asperities, in that Part which swims in the Liquor of the Amnios; so that one might readily conjecture, that this Colliquamentum was squeez'd from these Glands. But when I consult comparative Anatomy, and examine the Structure of this Cord in other Animals, I am persuaded the thing is quite otherwise. For in the placentiferous Kinds, there is no such Plenty of Jelly growing to the Cord, which, in Man, is thin, and runs out in Length, and must be judged very unfit for any such Use, by every one that sees it. In oviparous Kinds there is no Cord at all, but Vessels which spread over different Parts of the Fœtus, and enter it, some near the Anus, others near the Liver, and the usual Place of the Umbilicus: Nor do they ever gather into a Cord; but when the Time approaches for Exclusion of the Chick, the Left Artery, and Hepatic Vein, perishing, the rest of the Arteries, with the Mesenteric Vein, and the Intestinal Duct, are taken into the Abdomen, to supply the Vitellus: Now that the Colliquamentum of the Chick, with its Membrane, answers to the Amnios of viviparous Animals, is not at all doubted; so that we may reasonably conclude, that they have but one and the same way of receiving the Humour.

It will, therefore, be proper for us to inquire, in what manner the Liquor enters the Cicatrix in an Egg, and extends the fine little Membrane by degrees, till, at length, it becomes capable not only of a good large Fœtus, but also of a considerable Quantity of Liquor.

Whoever views this Cicatrix in the Egg, before Incubation, will perceive it very minute, and suspended in the Membrane of the Vitellus; yet this so small a Tenement entertains an Embryo, and becomes every Day more spacious, till an entire Animal arises thence, and shews itself. After two Days Incubation, as *Harvey* observed it, there will appear in it large conspicuous Circles, as big as the Nail of the fourth Finger: Within these Circles, as the same Author assures us, is contained a Liquor, extremely clear and resplendent, purer than any crystalline Humour, and appearing to be included within its own very fine Membrane, like a Part of the Albumen melted and clarified. He calls it, by a very significant Name, *Colliquamentum*. It increases continually; and on the fourth Day presents you with the Phenomenon of a purplish Border, with a small Line of a Blood-colour, which is continued to the *Punctum fulens*, situated in the Centre. The latter Augmentations are the most conspicuous; but the manner how it increases, is a profound Secret.

Whoever believes it done by Transudation, would do well to consider, besides the Arguments which are brought against this Opinion, from viviparous Animals, and which prove, that there is an Analogy between the Motions of their respective Liquors; I say, besides these Arguments, he would do well to consider, how carefully kind and indulgent Nature has provided for the Secretion of these Humours; and how circumspectly and warily she has, every-where, wrapt them up in fit and proper Coats: So that if, at any time, a Transudation was to happen, it must be made, not thro' a single Coat, but the Humour must break out from its Inclosures, and make its way into the Interstices of two Membranes; and then, at last, enter the Pores of another Covering. But who ever saw any Liquor between these Interstices? Or, to what Purpose did Nature use so much Care and Caution in separating these Humours? Would it not, at least, have been sufficient, that they should have been separated by single Coats, thro' which they might have easily afterwards pass'd? Besides, I would have the Abettors of this Opinion to consider, that when Nature allows an Ingress into a Membrane, thro' Pores of this Kind, she does not permit the Egress thro' the same Pores; so that the Humour which entered one way, must go out by another, and pass forward to another Membrane, which would render the thing void and ineffectual: The Ducts, all this while, which lead from Membrane to Membrane, are not as yet conspicuous; nor are there sufficient Reasons suggested for suspecting them; 'tis therefore incumbent upon us to cast about, and look out for some more rational and satisfactory Hypothesis.

What my own Sentiments are, I shall now inform the Reader: That minute Animalcule, which I imagine is generated in the first Conformation of the Egg, and lodged in the Cicatricula, contains a spirituous Liquor in its Vessels. This Liquor is precisely the same with that which *Gliffoni* so often distinguishes by the Name of *Spiritus Vitalis*, or the vital Spirit. This Liquor, upon the Approach of Heat, takes up more Space than it did before, and so passes off through the Extremities of the Vessels; and whatever Part either of the White or the Yolk it falls upon, it colliquates and melts it. By this means the Part on which it falls, is render'd so fluid, that it is easily incorporated with the above-mentioned Spirit, and together with it received into the Mouths of the Veins, which are not as yet red, and so passes to the Fœtus in greater Abundance than is requisite, either to nourish its Body, or to saturate the Blood, by which I mean the fore-mentioned Liquor. The Blood being thus impregnated with this Spirit, deposits it in the Arteries, which are inserted into the Coat of the Colliquamentum, after the same manner as the Arteries are inserted into the *Amnios* of viviparous Animals; so that the Coat of the Colliquamentum is not only distended with this Juice, but deposits and lays up within itself the far greater Part of it as proper Store for the Fœtus. These things appear very plainly in an Egg, and unless there be some Foundation for a different Set of Occurrences in viviparous Animals, I see no Reason why they should not likewise happen in them. It is not at the same time to be deny'd, but this Hypothesis stands chargeable with many Difficulties, and lies open to some considerable Objections; two of the principal of which I shall only consider, since I imagine the rest so nearly link'd to them, that they must stand or fall according to their Fate.

The first concerns the Mixture of the nutritious Juice with the Blood, which yet must be separated from it, and afterwards received into the Stomach, in order to be reunited with the Blood.

The other Objection respects that *elective* Motion of the Liquor, which carries it to make its Ingress by the Vessels dispersed in the Albumen and Vitellus, but its Egress by those which are distributed over the Membrane of the Colliquamentum.

To the first it may be answer'd, That the very same Juice which serves for Nutriment in the Fœtus, was once intimately united with the Mother's Blood at least, after it had undergone the first Concoction in her Stomach; which granted, I don't see what Inconvenience will follow, if it should pass from the Mother's Blood into that of the Fœtus, and there leave whatever is fit to be immediately converted into Blood, without any further Concoction or Fermentation. The rest may be repositied within the *Amnios*, as Matter for future Nutrition, to make its Passage through the Stomach, and there to be digested. This will appear the more probable, if we consider, that here is no Retrogradation of Nature, or Degeneration of Blood into a chylous Matter, but a Transition of alimentary Liquor for the Support of an Animal; which is no more than what happens in the Mother, both with respect to the Humours of the Uterus, and the Matter which forms the Milk.

To the second Objection I answer, That such elective Motions are found every-where in the animal Economy, with regard to the Distribution of Aliments as well as Excrements. So Milk always flows to the Breasts, the Humour we speak of, to the Uterus, Bile to the Liver, Serum to the Kidneys. The Reasons for this similar Attraction, I am incapable of giving, but believe they are to be reduced to Pullion; but it is sufficient for our present Purpose, that such a Motion there certainly is, whatever be the Cause.

From what has been said, we may draw a Solution of another Question, which has been lately started, concerning the Use of the fourth Membrane belonging to the Dog-kind. The Answer is, That the Liquor there collected is deposited in that Place, as in a Reservoir for the Use of the Fœtus.

So much for the Membranes and Duets. We shall add a few Words concerning the Humours.

All the Humours, let them be as many as they will, or in whatever Animal found, are nutritious, except only the Liquor of the Allantois. A great Part of viviparous Fishes emit an Egg of only one Colour, and including, as far as can be discern'd in so minute a Body, only one Humour. But the Method of Nature in their Generation, I confess, is unknown to me. But there are some Fishes which lay an Egg of two Colours, and consisting of a single Albumen and Vitellus; as the Ray. The Eggs of Birds, for the most part, include within their Shells three nutritious Substances, conspicuous to the Eye, for the Use of the Chick, that is to say, a Vitellus, and a double Albumen inclosed in Membranes. But after Incubation, we meet with a fourth, formed from a Colliquation of the others; and, by *Haller*, very properly called *Colliquamentum*. I say nothing of the Chalaza, which is not properly a Humour: much less are the Seed of the Cock, or the Principle of the Chick, to be so accounted, but only Props to the Vitellus, which is suspended in the Centre of the Egg. But the Colliquamentum, though it appears to Sight as if it were

transferr'd thither from some other Place, most certainly owes its Original to the Liquor contained in the Cicatricula. I don't here inquire, whether this be the Liquor which forms the Chick, or rather the Blood of the Chick already formed; but we know, that from hence are extended Vessels, which being affixed to the other Parts, especially the Albumina, attract the attenuated Humour, and refund it into the common Receptacle, in the manner just now explained. So the tender Embryo goes on wasting his Provisions, till the Albumina being consumed, the Vitellus comes to be included in the Abdomen of the Chick, just before its Exclusion; and from thence by a peculiar Duët is carried into the Intestines, where it supplies the want of Breasts to those little Creatures, and affords them all their Nourishment till the twentieth Day.

In viviparous Animals there are sometimes two, sometimes three Humours. The first is immediately received from the Placenta into the Veins, and forthwith goes to the Use of the Fœtus. The others are also received into the Veins, but are afterwards distributed by the Arteries into the Cavities of peculiar Membranes. In glanduliferous Animals, as also in the Swine, and the human Species, there is but one Humour, which is lodged in the *Amnios*: That this Liquor is nutritious, has been proved from its being the same as is found in the Stomach. It is thin at first, but in Length of Time grows remarkably thick, especially in the larger Kinds. Besides, there is found in all of them an Urine in the Allantois, of which I have given an Account.

Besides these, there is in Dogs, Cats, and Conies, and perhaps in some other Kinds, a third nutritious Liquor. I have already described the Membranes in which it is included, and now come to speak of the Thing itself. Indeed the admirable Variety in which Nature sports, surpasses our Understanding, nor can I find out a probable Reason why a third nutritious Liquor should be more necessary for these Animals than for others. Rumination affords no Help in this Controversy, for a Horse is as much destitute of it as ruminating Creatures; nor is eating of Flesh to be regarded, for a Coney has it, while the Swine and the human Kind are without it, if Man is really to be accounted among carnivorous Animals, which is to be doubted; for tho' after the Deluge he obtained a Licence for eating of Flesh, he seems naturally constituted for living upon the Fruits of Vegetables, as appears from sacred History, and the Structure of the human Body. He has neither Teeth nor Nails like those of voracious Animals, nor any thing else in common with them. And as for the Swine, tho' he loves well enough to feed on Flesh, yet he is naturally more intent on turning up of Roots, and consuming of Fruits. But what shall we say of the Coney, a Creature that feeds on Grass and Herbs? I know not, for my part; and yet it might be suggested, that the Male Coney would almost constantly devour the young ones, if the Dam did not hide them; and, in reality, if the Coney be compared with the Rat or Mouse, both of them carnivorous, there will be found no great Dissimilitude as to their Membranes and Placentæ. But this is merely problematic, and too slight a Foundation for an Hypothesis. However it may be safely assumed of these Animals, that they are next akin to oviparous ones, in which an Artery and Vein proceed from the Mesentery, and are appropriated to a particular Humour. But there is this Difference, namely, that the Vitellus, to which these Vessels belong, is consumed in the last Place, whereas, on the contrary, this Liquor in Dogs, &c. is the first that passes into Nutriment; and though it be copious in the Beginning of Gestation, yet before the Birth it is all gone, and not a Drop of it left in the Membrane. Hence, upon a right Computation, we shall find, that these Vessels answer to those of the Vitellus, and the Humour contained in them to the thinner Albumen; for the first Humour serves for Nutriment to the Embryo, and to increase and strengthen its tender Stamina, till it becomes more firm, and able to digest a thicker Juice.

However this be, we shall proceed in our Discourse on this and the other nutritious Liquor, and say somewhat also concerning the Urine. This last is known to be separated thro' the Kidneys and the Bladder. The others proceed also from the Blood, and very much resemble its Serum. And yet they are so far remote from the Nature of the sanguineous Serum, that being held over the Fire in a Spoon, they will not coagulate, as the other constantly does. Nor will even the Colliquamentum of the Egg itself concrete by this means, though constituted of Juices evidently liable to Coagulation: So much do the Humours differ from themselves, when consider'd before and after Digestions, Percolations, and other Ways of Nature's Cooking. All these Liquors, in Distillation, afford a soft, smooth Water, very like distilled Milk; and this Property belongs to the Liquor of the Allantois as well as the rest, for as yet it remains in the mild State of the Serum of Blood, not having its Salts exasperated and exalted, nor betraying any Marks of a tartareous or saline Quality; even the very Nurses observe, that the first Urine of Infants is not in the least salt. But in the larger Kinds of Animals, while I was passing this Juice through an Alembic, there seem'd to me to appear a

small Quantity of volatile Salt in the Head. Coagulations attempted by Acids, succeed variously according to the Variety of the Humours. The Liquor of the Amnios of the Neat-kind, after a Decoction of Alum injected, exhibited but few Coagulations, and those very tender, but of a remarkable Whiteness. The Juice of the Allantois only became turbid like Urine; Spirit of Vitriol and Vinegar had less Effect on both of them, than Alum.

There are also spontaneous Concretions in the last Months, which are found in both the Humours, but larger and more frequent in the urinary Membrane; which was the very thing that formerly suggested to me an Occasion for reckoning this Juice among the nutritious ones, as tho' it did not pass from the Bladder to the Allantois, but from the Allantois to the Bladder, and from thence through the Penis into the Amnios. But after long and various Contemplations on its Colour, Consistence, Smell, and Taste, in different Animals, I am convinced, that it is nothing but Urine, in all of them. But it seems to be consequent from the Nature of Concretions, that the Urine of sound Persons brings off with it some of the nutritious Juice, which the famous *Willis* very ingeniously conjectures to be the Matter of the Hypostasis. This is done much more copiously in an Embryo, where the Blood is full of such Corpuscles, and consequently sends off more with the Urine, which, after long Maceration in the Urine, concrete, and represent such a sort of Substance.

This more frequently happens in the Urine than in the Liquor of the Amnios, because this latter undergoes continual Alterations, Part of it being still consumed by the Fœtus, and the rest mixed with new, so that the whole Juice is renewed in a short Space of Time; whence it appears, that it does not stay long enough to form Concretions.

But even here are also found adipous Coagulations, which, for the most part, adhere to the Membrane itself. Urine, on the contrary, tho' it has fewer Particles of this Kind, which are the Matter of the solid Parts, yet it preserves them from their first Entrance to the Birth, and by a continued Concoction at length condenses them.

Nor are these Membranes the Receptacles only of Liquors, but contain also a good Quantity of Air. This is abundantly evident to those who are accustomed to dissect these Parts, and frequently lift those soft Membranes with their Hand, whilst not at all distended, and find considerable Cavities between them and the Humours they contain, which must not be supposed to be a mere Vacuum. Besides, the Crying of the Child declares the Presence of the uterine Air, without which it seems impossible for a Sound to be excited. Indeed I could hardly be persuaded of the Truth of these Cryings, before I had the following Relation from a very noble Lady in *Cheshire*. This illustrious Person sitting with her Husband, the Chaplain, and other Company, in her Parlour, after Supper felt a strange Commotion in her Belly, which shook her Cloaths to such a Degree, that it was perceived by the Attendants. She was with Child, and in the eighth Month of her Term. On a sudden a Voice was heard; but whence it should proceed, having no Suspensions of the Unborn, they were at a Loss to conjecture. Soon after, the Lady was seized with a second Disorder, and a visible Concussion of her Belly and her Cloaths, and a Cry was heard as if it proceeded from thence. While the Company stood wondering, and talking to one another about this strange Event; the same was renew'd the third time with all its Circumstances, and the Crying heard so plain, that the People, who were now very attentive, could no longer doubt whence it should proceed. The young Lady, who was so audible in the Womb, is now living, and in a good State of Health. I could not but believe a matter of Fact so well attested, nor avoid publishing it, especially since it is of so great Moment in the present Controversy. Granting this to be true then, I know not how to account for it, without admitting Air to swim on the Liquors within the Membranes, when they were raised by the Head of the leaping Fœtus, and separated from the Superficies of the Humour.

But why should we account the Crying of the Child in the Uterus a Prodigy, when we so frequently hear the Chick peeping in the Egg, as well before the Shell is broken, as afterwards, the Membranes still remaining entire? *Needham de formato Fœtu.*

Monroe in the *Edinburgh Medical Essays*, has a long Dissertation of the Nutrition of the Fœtus, wherein he endeavours to prove, that none of the Liquor of the AMNIO enters the Stomach of the Fœtus for its Nutrition.

From the Memoirs and History of the Royal Academy of Sciences.

The Amnios is a very fine, transparent, and soft Membrane, of an uneven Surface on the Outside, but sleek and smooth on the Inside. It incloses the Infant, the Navelstring, and the Waters, is one of the Membranes that covers the Placenta, and ends at the Navelstring, near the Place where the Vessel separate. *Memoirs de l'Acad. Roy. des Sciences. 1714.*

With regard to the Waters inclosed in the Amnios, it is impossible for the Child to suck them in for want of Respiration; besides, they are too clear, and too like Urine, to serve for its Nourishment. They are of Use in preventing the Weight of the Child, and the Inequalities of its Body from bearing hard on the Neck of the Uterus, in its Situation in the Uterus. They defend the Child from receiving Hurt when it moves, and also prevent it from adhering to the Amnios. *Ibid.*

Some experienced Anatomists have taken great Pains, tho' to little Purpose, and stretched their Imaginations to discover by what ways the Liquor of the Amnios is conveyed over the urinary Membrane.

M. Taubry had recourse to a new Expedient. He supposes, that the Cavity of the Amnios was full at the very Beginning of the Formation, when as yet the Fœtus had no Urine to transmit to the urinary Membrane.

The Amnios being full, and the Fœtus grown stronger, the urinary Membrane begins to fill in its Turn; and the Amnios receives no fresh Supply, but keeps what it has in Reserve, dispensing by little and little what is necessary for the Nourishment of the Child till the Time of its Birth. An Observation which confirms this Conjecture, is, that the Amnios is less full, and the urinary Membrane fuller, in proportion to the Advancement of the Fœtus. If this be not a Contrivance of Nature, it is mysterious and fine enough to deserve it should be so. *Hist. de l'Acad. Roy. des Sciences. 1699.*

Over the middle Membrane comes the Amnios, which adheres to it in all its Extent, and in so close a manner, as to require some Pains to separate them. This makes me believe, that there is no such thing as Urine between the two Membranes, as some Authors have imagin'd; for if there were any Urine, which is dissipated at the Birth, there could be no such Adhesion between these two Membranes. The Cavity form'd by the Amnios contains a Liquor, in which is the Fœtus with its Cord; so that the Amnios does not immediately inclose the Child, as some have asserted. *M. Roubaud in Mem. de l'Acad. Roy. des Sciences. 1715.*

AMNIS. See AMNA.

AMOIE, *επιου*. *Galen* explains this moderate. But *Hesychius* says, that *επιου*, amongst the *Sicilians*, signified bad.

AMOLYNTON, *ἀμολυντον*, from a Negative, and *μολύρω*, to pollute, or make dirty. *Cassius Anthonius, Aet. Lib. 2. Cap. 27.* informs us, that this Name is given to a topical Application, which, if handled, will not defile the fingers.

AMOMI. *Jamaica* Pepper is thus called by the *Dutch*.

AMOMIS, a Fruit somewhat like the AMOMUM. It is called also PSEUDAMOMUM. See AMOMUM.

AMOMUM. Tho' *Dioscorides* has been very particular in his Account of the Amomum, the Moderns have not only been much perplexed in determining what the true AMOMUM was, but are not certain, that any such thing as the Amomum of the Antients is now existing, or, at least, known to us.

The Account which *Dioscorides* gives of it, is thus:

Amomum is a small Shrub, that grows twilling its woody Stem into the Form of a Bunch of Grapes. It bears a small Flower, like that of the *Leucoium*, and Leaves like those of *Bryony*. The *Armenian* is esteem'd the best Sort, which is of a Colour inclining to Gold, of a yellowish Substance, and remarkably fragrant. The *Median* is weaker, as growing in flat and watry Places. This is a large Sort, of a greenish Colour, soft to the Touch, of a fibrous Substance, and smells like *Origanum*. What comes from *Pontus* is of a yellowish Colour, short, and not difficult to break, clustered like a Bunch of Grapes, full of Fruit, and very odoriferous.

Choose what is new, and white or reddish, not the close and connected, but what is of a loose and diffused Substance, full of Seed, and like small Clusters of Grapes, ponderous, extremely fragrant, free from Worms or Mouldiness, acid, and biting upon the Tongue, of one simple Colour, not partly coloured.

It is of a heating, drying, astringent, hypnotic and anodyne Quality, if apply'd in manner of a Cataplasim to the Forehead. It ripens and dissolves Inflammations and Melicenses. Used in a Cataplasim with *Ocimum*, it helps those who are stung with Scorpions. It is good for gouty People, and helps and mitigates Inflammations in the Eyes, and also in the Bowels, if taken with dry'd Raisins. It is of Service in Women's Infirmities, used either as a Pessary, or by way of Infusion. The Decoction of it is very proper to be drank by such as labour under Infirmities of the Liver, or Kidneys, or the Gout. It is also an Ingredient in Antidotes, and the most costly Ointments.

Some have got a way of adulterating Amomum with what they call *Amomis*, which is a Plant, that resembles Amomum, but has no Smell, and bears no Fruit. This grows in *Armenia*, and produces a Flower like *Origanum*.

In choosing such Kind of Simple as this, be sure to avoid Pieces or Fragments, but take the whole Plant, as they spring from one Root, entire with all their Branches. *Dioscorides, Lib. 1. Cap. 14.*

From

From *Pliny's* Account of the AMOMUM, we can only infer, that the Berry-bearing Ever-green, which commonly goes by the Name of *Amomum Plinii*, is neither the true Amomum, nor the Plant which *Pliny* alludes to; and that *Pliny* did not know himself, what the Amomum really was.

The Grape of Amomum, he says, is in Use, which grows on the Indian wild Vine, or, as others have imagined, on a Myrtle-like Shrub, an Hand's Breadth in Height. It is gathered with the Root, and packed up in small Parcels in a gentle manner, being extremely brittle. The most valuable is, what has Leaves nearest resembling those of the Pomegranate-tree, not wrinkled, and of a russet Colour. The next in Goodness is, the pale-coloured; the herbaceous is worse, and the white worst of all, which Colour it also takes with Age. It grows in that Part of *Armenia*, which is called *Otene*, and in *Media*, and in *Pontus*. They adulterate it with Pomegranate-leaves, and liquid Gum, to make it stick together, and roll itself up in the Form of a Cluster of Grapes.

There is also what is called *Amomis*, which is less veiny, but harder, and less fragrant; whence it appears to be another thing, or to be gathered before it is ripe. *Pliny*, *Lib. 12. Cap. 13.*

Amomum is endued with the same Virtues as the Acorus; only the Acorus is drier, and the Amomum the better Digestive. *Ortuf. Med. Coll. Lib. 15. Cap. 1.*

Salmafus has, with a great deal of Learning, endeavoured to shew the Difficulty of knowing what the true AMOMUM of the Antients was; and to prove, that none of the different Plants which have been taken for it, was the ancient AMOMUM.

Concerning Amomum, says he, there is much Dispute; for it is not only doubted what it is, but whether it be really existing; for the old Plant of that Name, which we are satisfy'd was formerly in Being, has been eagerly search'd after by our modern learned Botanists, but not found. In so doubtful a Case, it is however certain, that the true Amomum is not what is sold under that Name in the Shops. I should much wonder, that an Aromatic, so noted and celebrated in former Times, should be now out of Knowledge, did not I find, that several others of the spicy Kind, which were formerly of equal Use and Esteem with Amomum, lie conceal'd at present under the same Obscurity. It is much easier to tell what it is not, than what it is; for the latter is out of our Power, since nothing in our Times appears any-where which we can call Amomum, whatever may be pretended to the contrary. *Julius Scaliger*, in his Notes upon *Theophrastus*, confidently affirms it to be what they commonly call the *Rose of Jericho*, whose Want of Fragrance must be imputed to the Nature of the Place where it grows. Many, before and since his Time, who were of the same Opinion, have been exploded by others; for, besides other disagreeing Characters, this *Rose of Jericho* is tough and flexible; but the Amomum, as *Pliny* assures us, is extremely brittle. Hence there were two Sorts of it sold at the Spicery-shops; one whole, or in the Cluster, the other crumbled into small Bits and Dust. And they bore a different Price; for, as the same Author affirms, the Price of the former was sixty Denarii, of the other but forty-nine. *Ambrosius* the elder, in the Composition of the *Theriac*, calls it *βλυστον ἀμωμον*, "the clustered Amomum," in this Verse, which I read thus:

Καὶ εὐχρησθ, μίον τ', ἰδὲ βλυστόν τ' ἀμωμον.

"And of Styra, and Meum, and Amomum in Clusters;" and so *Damocritus*, in many Places of his Iambics, as he is quoted by *Galen*, has *βλυστον τ' ἀμωμον*, that is, *Uva Amomi*, "the Grape-like Cluster of Amomum." So in the Author of the Poem upon the Phoenix:

----- *Uvamque precat spirantis Amomi,*

"The Grape of the Amomum diffusing distant Odours."

The Words of *Pliny* are to be read, *Amomi Uva in Uju, ex lada l'ite labrusca; ut alii existimaverit, Prutice botruosa*. "The Grape of the Amomum is in Use; it comes from the Indian wild Vine, or, as others imagine, from a Cluster-bearing Shrub." But none ever said, that Amomum was the Grape of the wild Vine, or was of the Kind of the Indian Vine. *Dioscorides* indeed says, that it had Leaves like Bryony, that is, the white Vine; but none ever heard or read, that it was the Grape of a Vine. What they call the Grape in Amomum, is nothing but the little Branches of the Shrub, twisted and interwoven in the Figure of a Cluster of Grapes, and, as *Dioscorides*, *βλυστον ἐκ ξύλου ἀντιμπεπλεγμένον αὐτῷ*, "a wooden Cluster, complicated and rolled up within itself." Such exactly is the Shrub of the *Rose of Jericho*, which is actually botryous, or shaped clusterwise, the slender Branches being twisted up in Folds one against another, in manner of a Bunch of Grapes. But, for all that, the *Rose of Jericho* is not Amomum; it should rather be *ἀμωμῖς*, "the Amomis," which was harder than Amomum, had no Smell, and, according to *Dioscorides*, was used in adulterating Amomum; to which *Pliny* adds, that it was not so full of Veins as Amomum,

but harder; and *Dioscorides* makes it have a Flower like Origanum. Nor indeed is the Flower of the *Jericho* Rose much unlike it in Figure; but then the *Rose of Jericho* has a Seed, whereas the Amomis, according to *Dioscorides*, has none. *Pliny* gives the Amomum the Leaf of the Pomegranate-tree. *Quam maxime laudatur Punici mali Foliis simile*. "They set the highest Value, says he, on what has Leaves like the Pomegranate-tree." Why does he reckon this among the good Properties of the best Amomum, if Nature gave it such a Leaf? All the Greeks tell us it had a Leaf like Bryony: *Isidore*, one of them, says, *Flore albo veluti Viola, Foliis similibus Bryoniae*. "It has a white Flower like the Violet, but Leaves like Bryony."

Pliny was deceiv'd by his own Ears; for when his Anagnostes [Reader] happen'd to be reading *καλλιστον ἐστιν Ἀρμένιον χρυσεόν τῇ χρεῖα*, "the best is the Armenian, which is of a gold Colour," he wrongly fancy'd, that he heard *ἐμοιον* or *παράπληστον τῇ ρῖα*, "like, or much resembling the Pomegranate-tree." Hence he came to render it, *Laudatur quam maxime Punici mali Foliis simile*. "The most valued, &c." He says nothing of the golden Colour of the Leaf; which is an Argument, that the Words sounded in his Ears like *ισαζον* or *ισίζον τῇ ρῖα*, [*isazon* or *isizon te roa*] "resembling the Pomegranate-tree," instead of *χρυσίζον τῇ χρεῖα*, [*chryszon te chrea*] "of a Colour like Gold." Of this I don't in the least doubt.

It is a long time since the genuine Amomum began to be missed. The *Arabians* write nothing about it but what they transcribe Word for Word from the Greeks. They call it *Hamama*, a Word plainly deflected from *Ἀμωμον*, "Amomum." *Serapion*, in the Description of Amomum, quotes no *Arabian* Authors, but only *Dioscorides*, whose Words he transcribes; and *Avicenna* says no more of it than is in *Dioscorides*. But as to that Passage in *Dioscorides*, where he says, that Amomum has a small Flower *ὡς λευκῆς*, "like the Leucoium;" the *Arabians* seem to have follow'd another Reading, or not to have understood what was the *λευκῆς*, "Leucoium." The Translator of *Serapion* gives us a monstrous Version, without any Explication: *Habet Florem parvum, similem Flori Plantæ dictæ Locadan*. "It has a small Flower, like the Flower of the Plant called Locadan." *Cremenensis*, the Translator of *Avicenna*, seems to have follow'd another as bad a Copy, when he renders, *Et habet Florem similem Flori Indæ. Bellunenſis* indeed made a Correction of it in the Margin, by *similem albe Violæ*; but this he took rather from *Dioscorides*, than from any *Arabian* Author; for the *Arabic* Words of *Avicenna* sound nothing like it, but, according to the Edition at *Rome*, are to be render'd, *Et ei Folium magnum Hared*; "And it has the great Leaf of Hared," the *Arabic* Word signifying not a Flower, but a Leaf; and is soon after taken in that Sense, where the Leaf of Amomum is compar'd to those of the *Vitis Alba*. *Avicenna* says nothing of the Flower of Amomum in that Place, nor is *Hared* the Name of any Flower or Herb that I know of; but comes from a Verb that signifies to dilate and extend, whence *hared* is broad and extended. Wherefore I suppose, that *Avicenna* says, that the Leaf of Amomum is great and broad, and like the Leaves of the white Vine; for that is the plain Meaning of the Passage in the original *Arabic*, which ought to be thus render'd, Word for Word, *Et ei Folium magnum, latum, et in similitudinem Foliis Vitis albe*, "And it has a Leaf, &c." There is no mention here of a Flower, for this was omitted by *Avicenna*. I wonder therefore whence the Translator could fish out his *Indian* Flower, to be compar'd with the Flower of Amomum. Besides, there is not the least Syllable said in the *Arabic* of the white Violet, which the *Arabians* call *Cheiri*. The Translator of *Serapion* also renders the Word *Hamama*, deriv'd from Amomum, by *Pes Columbinus*, "Doves Foot," which some were so fond of, that they did not scruple to affirm, that the Amomum of the Antients was the same with the Herb commonly called *Pes Columbinus*. This, among the rest, was the Opinion of *Garcias*, a Man very little skill'd in *Arabic*, tho' he conversed all his Life-time with *Arabians*. He tells us, that he was informed by a certain *Jeru* Apothecary, that Amomum was called in the *Arabian* Tongue *Hamama*; but this Word signifies, when interpreted, no other than *Pes Columbinus*; nothing can be more wrong. A Dove, 'tis true, is called in *Arabic* *Hamam*, but Amomum has nothing to do with a Dove, or Dove's Foot. *Garcias* adds an Argument to confirm his Interpretation, which is, that he was presented with a Branch of Amomum by the *Persian* and *Turkish* Physicians, who officiated about the King *Nizamoxa*, which to the Life resembled the *Pes Columbinus*; and besides exactly agreed with the Description of Amomum, which is in *Dioscorides*. Mere Fables! and all that is said about the *Pes Columbinus* no more than Trifling, and nothing to the Purpose. I am at a Loss, I confess, to imagine how the vulgar Herbalists came to hammer out this Word. I have heard, indeed, that so they call a Species of the *Geranium*, which has the Leaf of the *Mal-low*. But the Herb to which the *Arabians* give this Name is quite another thing; for they bestow it on the *περγόριον*, or *περγόριον* of the *Greeks*. This is called by them *rigel albamam*,

mam, that is, *the Foot of Doves*, because of the *Greek Name Peristerion*, ἐκ τῶν τὰς περιστερῶν ἡδύως ἐνδρασίβειν ἐν αὐτῇ, "from the Doves delighting to be much about it." Hence it came to be call'd by the *Arabians Doves Foot*. *Apuleius Pseudonymus* also calls it *Columbina*, "Columbine," and says it is pleasant Food for Doves. Indeed an *Arabian Botanist* renders the τὸ περιστερίον, [*Peristerium*] in an old *Dioscorides*, by *rbai alhamam*, that is, *the Food of Doves*. There is mention made of this Herb in *Avifena*, *Lib. 11.* which he imagines to be also called *rbai alabil*, that is, *the Food of Camels*. An old Interpreter renders it *Chaff*, for what Reason I know not. *Avifena* himself, I am sure, says it is an Herb that has Seeds-like Grains of Myrtle: He uses the *Arabian Word basis*, which signifies *Chaff*, *Stubble*, or *Hay*. However this Herb is not absolutely to be called *Palea*, "Chaff;" for the Word in *Arabic* signifies any Herb. Whether it be the *Peristerium* of the *Greeks*, I know not. It has a Virtue of mitigating Ulcers that are subject to spread, if apply'd with Vinegar; but more properly it is not the same. There is another Herb, which, among the same *Arabians*, is called the *Pabulum Cameli*, or *Passus Cameli*, "the Food of the Camel." *Garcias* writes, that the *Juncus Odoratus* is so called. *Scaliger* on that Passage observes, that it is named in *Arabic* *halaf algemali*; but I fancy he rather imagin'd that it was so from the Words of *Garcias*, than read the same in the Writings of the *Arabians*. The same *Garcias* informs us, that this *Juncus* was called by the same *Arabians* *Palea*, "Chaff," or simply *the Herb*, in *Arabic* *halaf*. As for the *Peristerium*, the *Arabian Herbalist* is in the wrong to make it the same with that Herb which *Avifena* points out to be the Food of *Doves*, or of *Camels*; for this is the *Verbenaca*, "Vervain," of the *Latins*; and is called *Columbaria*, and also *Columbina*, "Dovewort," by the *Latins* of later Ages. The *Arabians* also said *hamama*, and a very good *Græco-Arabic Glossary* has *χάμαμα, περιστεριών*, "Chamama, Peristereum." This Paragogic Form is to be found in many other Words; as *Curcum*, Saffron, *Curcuma*, Turmeric, a Saffron-colour'd Root; *Selach*, the Bark, *Selicha*, ἡ συριγγίς κασία, "Cassia cover'd with the Bark." So *Hamama* is the Herb *Columbaria*, not a Dove, as is generally thought by the Learned. This Noun differs not in Pronunciation from *Hamama*, which signifies *Amomum*, but very much in the manner of Writing; for this latter is written with an *Elif* in the last Syllable, but the other with a *He* marked with two Points, which carries the Force of *Th*. Hence then proceeded the Mistake of those who by *Amomum* understood to be meant *Pes Columbinus*.

In the same *Græco-Arabic Lexicon* or *Glossary*, you may read various Expositions of *Amomum*, which are a full Confirmation of its being unknown even at that Time. Ἀρωμον ἢ ῥίζα τῆς πένταφυλλου. "Amomum is the Root of the Cinquefoil." Also Ἀρωμον ἕτερον Ἰνδικόν, οἱ κλάδοι τῆς κινάμωμου. "Another Kind of Amomum is the Indian, which is the Branches of the Cinamon-tree." This is an old Interpretation; for *Avienus Fessus* understood τὸ κινάμωμον, "Cinamon," in *Dionysius Periegetes*, to signify *Amomum*.

Ales amica Deo largum congeffit Amomum.

"The Bird beloved by the God piled up a large Quantity of Amomum." The *Greek Poet* has it,

Ἥλθον φύλλα φέροντες ἀκηρασίων κινάμωμων.

"They came bringing Leaves of pure and unmixed Cinamon." *Hesychius*, in his *Lexicon*, observes, that ἀρωμον, "Amomum," signify'd also Frankincense. Ἀρωμον ἐν ταῖς ὀνομασίαις ὁ λιβανώδης. "Amomum, in the Lexicons, is Frankincense." The same Author expounds κινάμωμον, "Cinamon," by τὸν λιβανωτὸν, τὸ λιβάνιον, two Words signifying Frankincense.

Some are of Opinion, that the *Amomum* of the Shops is the Seed of an Herb, which in the Editions of *Dioscorides* is called by Mistake *Σίσων*, [*Sison*] instead of *Σίνων*, which is the Word in all the ancient Copies. Σίνων σπερμαδένιον ἐστὶν ἐν Συρίᾳ γινώμενον. "Sinon is a small Seed that grows in Syria." The *Glossæ Iatricæ* on this Passage say Σίνων ἔστι δὲ ἀρωμαδικόν, εὐοδὸς ἀνίσσῃ. "Sinon is a Species of Aromatic like Anise."

Lucan, *Lib. 10.* joins Cinamon with *Amomum*; and in so doing, confutes those who make *Amomum* to be the same with Cinamon.

Cinnamon insundunt, quod nondum evanuit Aura, Advectumque recens vicinæ Messis Amomum.

"They infuse Cinamon unexhausted of its Odours, and Amomum fresh gather'd, and brought from the neighbouring Harvest." What, was it gather'd in such Plenty, as to deserve the Name of a Harvest? Or does he allude to the Etymology of *Amomum*, as tho' it took its Name ἀπὸ τῆς ἀμᾶν, ἀ μετεδο, "from reaping?" Neither of these Conjectures, to me, seems probable: But it was usual with the Poets thus to speak when they talked of Spices, as *Quicquid metunt Arabes beneculentibus Arois*. "All that the Arabians reap from their fragrant Fields." And in *Propertius*, *odoratæ Cultor Arabi Segetis*, "the Arabian Cultivator of the

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"scented Crop." For they take their Spices to be their Harvest; whence *Pliny* says, that the *Arabian Fruits* consist of Spices, and even calls the gathering in of their Frankincense a Harvest, *Lib. 12. Cap. 14.* where speaking of Frankincense he says, *Meti semel Anno solebat minore Occasione vendendi*: "They used to reap it once a Year, when there was less Opportunity of selling it." And by-and-by he calls it *Vindemiam*, "a Vintage." The same Author says of Cardamom, *Metitur et eodem modo in Arabia*, "They reap it after the same manner in Arabia." *Meleager* of the *Juncus Odoratus*:

Ἐν αὐτῇ σχοῖνον ἀμυδάμεν.

"Having reap'd the fragrant Rush." But this is by-the-by. To return,

Virgil seems to have taken *Amomum* for a Grape, and the Fruit of the Vine, in this Verse:

---- ferat et Rubus asper Amomum.

"And let the prickly Bramble produce Amomum." The Bramble bears its Fruit in Clusters, and the Poet would have the Bramble for its Fruit produce Amomum. 'Tis plain, that he intended the Amomum should be taken for a real Grape and Fruit; but it is a Shrub, which, by the Implication and Convolution of its small Branches represents the Figure of a Cluster of Grapes, and is gather'd with its Root. In another Place he calls it *Affyrium Amomum*. *Servius* in one Place calls it a Flower, in another an Herb of a most pleasant Scent. By *Affyrian* the Poet means *Median*. *Pliny* says, that it grows in a Part of *Armenia* called *Otene*, and in *Media*, and in *Pontus*. Ὀττηνῇ, "Otene," is that Part of *Armenia* which lies about the River *Cyrus*. What grew formerly in so many Places, is now no-where but in Name.

Theophrastus says, That *Amomum*, in the Opinion of some, was also brought out of *India*: τὸ δὲ καρδάμωμον καὶ ἀρωμον οἱ μὲν ἐκ Μιθίας, οἱ δὲ ἐξ Ἰνδῶν καὶ ταῦτα καὶ τὴν νάρδον. "Cardamom and Amomum, some say, are brought out of *Media*; others affirm, that we have both these and Nard from the Indians." *Ovid*, like a Poet, says, that the Bird *Phoenix* lives on dry Amomum; therefore it must be a Native of *Arabia* or *India*. But *Dioscorides* makes no mention of the *Indian Amomum*, nor does any other of the Antients besides. *Dioscorides*, among other Characters by which the *Pontic Amomum* is distinguished from the rest, describes it as εὐσθραυστον, "not difficult to be broken." Therefore the other Sorts of Amomum are δύσθραυστα, "difficultly broken." This is directly contradictory to *Pliny*, who says, that it is *protinus fragile*, "very soon broken;" for which Reason it is gently and leisurely made up with the Hands, that it might not be broken; for the Passage must be read thus: *Carpiturque cum Radice, manu paulatim leviter componitur protinus fragile*. "It is gather'd with the Root, &c." Mention is also there made of the *friatum Amomum*, "the crumbled Amomum," which also was valuable. It was so brittle, it seems, as to be crumbled. But *Dioscorides* writes of the *Pontic Amomum*, τὸ δὲ Πόντικόν ὑπόκλειρον, καὶ μακρόν, ἐδὲ δύσθραυστον, βόθρυον δέ, πλήρες καρπῶ. "The *Pontic* is reddish, not long, brittle, cluster'd, full of Fruit." Wherefore the two former Sorts, the *Median* and *Armenian*, are δύσθραυστα, "not brittle." *Ovid* speaks of the Powder of Amomum,

---- et Amomi pulvere conde,

"and lay him in Powder of Amomum." But the Question is, whether this Powder was made of Amomum by pounding or crumbling. Cassia and Cinamon were also pulverized, but by means of pounding only, not by crumbling [*trita tantum, non friata*].

Amomum was sold by the Colour-sellers not only in the Grape, but, as it appears, also in Powder. And perhaps *Pliny* imagin'd, that this Powder was the Produce of the crumbling of Amomum, from whence he conjectur'd, that it was very brittle, or rather friable. *Dioscorides* does not say so much as this even of the *Pontic*: He says that it was not δύσθραυστον, "hard to break;" but it does not follow, that it was easily friable, because it was not difficult to be broken. Many things which are brittle, are not friable. The *υδραυστον*, "easy to break," of the *Greeks* is different from their *υδρυνάτον*, "easy to crumble." I have no Faith in *Pliny*, being certain, from an infinite Number of Places besides, that he is not to be depended upon for one single Matter. From a preconceived false Opinion, that the Leaves of Amomum were like those of the Pomegranate-tree, he says, in the same Passage, that it was used to be adulterated with Pomegranate-leaves, and liquid Gum, that it might stick together, and roll itself up in the Form of a Bunch of Grapes. According to this Opinion, Amomum might be no more than a Parcel of Leaves conglomerated and convolv'd, or rolled up. Yet *Dioscorides* has nothing about the Leaves, and 'twas the Shrub itself, not the Leaves, that compos'd the Cluster, βίτρυς καὶ ξύλων, "the Cluster consists of the woody Substance." And as *Avifena* says, speaking of this same Amomum, *hunkud min chixeb*,

“ the Cluster or Bunch is of Wood.” So that this Cluster consisted of the small ligneous Branches roll’d up within themselves.

On the same Authority depends the Assertion in the same Place, that the Cardamom was like the Amomum, both in the Name, and in the Shrub. He might as well have said, that the Cinamon too was like Amomum. For as to the Name, Cinamon [*Cinnamomum*] is as much like Amomum as is Cardamom, but neither is the Shrub of Cardamom at all like that of Amomum. Indeed if the Smell answer’d, and the Shape of the Leaves, there would be nothing wanting in the *Jerusalem Rose* to make it pass for the true Amomum. The Shrub is about a Hand’s Breadth in Length, shoots forth several Branches from its Root, which are reflected and conglobated in such a manner as to represent a Cluster, which incloses a Multitude of Seeds, as in a Spike, that stick to the small Branches or Sprays, like Grapes in a Cluster. *Isidore* says, *Amomum Frutex est in Syria et Armenia nascentis batrosi Semen reddens sibi connexionem*. “ Amomum is a Shrub that grows in Syria and Armenia, and bears a Seed connected in manner of a Cluster of Grapes.” I have two of these Roses now by me, which being compared with the Description of Amomum, seem, to me, to represent it in a lively manner. ’Tis certain, that of all the Things obtruded upon us for Amomum, there is nothing that agrees better with it. As to the Smell, it might be answer’d, that this is a Quality which depends on the native Soil. So the common Oenanthe, and the Attic itself, have no Smell; ’tis only the *Cyprian Oenanthe*, of which they make the Unguentum Oenanthinum, that carries a Fragrancy. Yet the Country of *Pontus*, which is colder than *Judea*, produces the most fragrant Amomum, *ἡ τῇ ὀσμῇ πικνικὴν*, “ and that strikes the Sense of Smelling.” But this perhaps is not to be regarded; for the *Median Amomum*, tho’ the Country be hotter, yet because it grows in Fields, and watery Places, is of less Virtue and Fragrancy, as *Dioscorides* informs us. As to the Leaf’s not answering the Description, the Fault perhaps might lie in the first Reporters. How many things do we find related in antient Authors, which are now discover’d to be false! For Instance, the *Malsbathrum*, according to *Dioscorides*, is a Leaf that floats on Pools, and standing Water, like an aquatic Plant. We have observ’d more such Mistakes elsewhere.

It would be Folly to affirm the Rose of *Jericho* to be Amomum, especially since there are so many things that might induce us to believe the contrary. Those Antients would not have been at the Trouble to search in *Armenia*, *Media*, and *Pontus*, for a Plant which every modern Traveller brings home with him from *Judea*. They would, at least, have inform’d us, that it grew also in *Judea*, but without Smell. *Theophrastus* brings it from *India*. *Isidore* writes, that it is found in *Syria*; but none of the Antients agree with him. *Arifena* has *Egyptian* instead of *Pontic* Amomum, by a Mistake of the Translator; for what he renders, *Et est Species Egyptiaca*, “ And there is the Egyptian Species,” in the *Arabic* is no more than, *Et Species alia est*, “ and there is another Kind.” It is not improbable, that this Rose was seen by the Antients, and described for the Amomum. It would be Amomis; but that it has Seed, which Amomis wants, according to *Dioscorides*.

In so great a Variety of Opinions, one knows not how to determine, nor where to fix. *Pliny* tells us, that Amomum is extremely brittle and friable: *Dioscorides*, that it is soft to the Touch. The former gives it the Leaves of the Pomegranate-tree, the other those of Bryony. *Salmasius*, *De Homonym. Hyl. Intr. Cap. 91*.

The most probable Account, however, of the true Amomum, is that given by *P. G. Camelli*, as follows, from the *Philosophical Transactions*.

After I had seen the cluster’d Bunch of Flowers of the *Tugus*, which some call *Birao*, others *Carapi*, and tasted the Kernels of the Grape, or the oblong Seed, and compar’d them with the Descriptions which the Botanists give us of Amomum, I became of Opinion, that the *Tugus* was the genuine Amomum of *Dioscorides*.

This *Tugus* is a Plant, sometimes above a Cubit high, with Leaves like the Plant *Tagbac*, or *Bagonghonque*, except that its under Part is cover’d with a delicate Down, and that it is more fibrous, longer, and fragrant. At the Root of the Plant, or Body of the Stalk, from the very Middle or Heart of a foliaceous Stem, sprouts forth a Parcel of floriferous and graniferous Leaves, an Hand’s Breadth and half in Length, in the Figure of a Cluster of Grapes, having some Resemblance to the Pillil or Bunch of Flowers of the *Amomontum*, adorn’d with very red small Flowers, which are succeeded by Grapes, that run out in Length with a Neck, as tho’ they were the Reliques of the Tube of the Flower, and are inclosed in a thin sweet Rind, whence they are mostly; together with the Seed, or Kernels, devour’d by the Mice and the Birds, so as that it can be had only in very small Quantities. That it was not common in former Ages, nor grew in every Country, *Virgil* seems

to insinuate, by his promising, that *Affyrium vulgo nascetur Amomum*, “ the *Affyrian Amomum* shall grow every-where.”

These Grapes commonly contain five or six reddish, oblong, unequal, aromatic, fragrant Kernels, or Stones, less acrid than Amuyong, or the Cubebs of the Shops. Some of the *Indian* young Women use to thread them, sometimes by themselves, and sometimes intermixed with Pearls and Coral, and so make them serve for *Carapi*, that is, Bracelets and Necklaces. Others make these Kinds of Ornament of these Kernels, and the Seeds of *Balmusci*, by them called *Maricom*, or of the *Arundo Lithospermus*, which they call *Tigbi*, or of the *Canna Florida*, which is their *Ticassicas*, or of the *Pisum Coccineum*, by them called *Saga*; and also of the Seeds of *Amomontum*, *Badiang*, and *Calanos*. But they wear the Kernels of the *Tugus* about their Neck on account of their Fragrancy; besides, they are found by Experience to preserve from Infection in corrupt Air, and to heal the Sting of the *Scolopendria*, [a venomous Insect] if chew’d and apply’d to the grieved Place. The Root is like the Root of *Tagbac*, or *Calamus odoratus*, being insipid, and white in the inner Substance, but wrapt up in cepaceous [Onion-like] Coats of a very red Colour, and endu’d with some Fragrancy. I had an Account, by a Letter from *Borongan*, that this Plant bore another Fruit on the Tops of the Stalks, which had no Smell; but this I never saw. The *Indians* of *Indostan* assured me of the same, but I fancy they mistook the *Tachac* [*Tagbac*] for the *Tugus*.

It grows in *Borongan* and *Paranas*, in *Samar* the chief of the other Islands, and in *Leyte*. And I don’t doubt but it may be also found in *Luzon*, especially at *Silanum*, in the deep Places worn by the Torrents.

N. B. The young and tender Buds of the Flowers of the *Tugus* have some Resemblance to the Pseudo-Amomum of *Garcias*, which expresses a Dove’s Foot. But that nothing may be wanting to clear up the Matter, I have sent with these Advices the Figure of the Plant. Some will object, I know, and say, that a Chestnut is better like an Egg, than the Leaves of the *Tugus* are like those of the Pomegranate-tree, which I freely allow. But all that *Dioscorides* and *Pliny* have related of the Amomum, I think, should be understood only of the floriferous Cluster of the *Tugus*, when turgid with Seed, because the entire Plant itself was unknown to them. For this *Thyrus* of the *Tugus* will be found to be the little Shrub [the *θαρύισκος*, “ *Thamniscus*,” of *Dioscorides*] about an Hand’s Breadth in Height; to consist of reddish-coloured Wood, or a ligneous Sort of Substance; that its Leaves and Flowers are like those of the Pomegranate; that it rolls itself up in the Form of a Cluster of Grapes, or, as *Barth. Merula* translates the Expression of *Dioscorides*, has a Fruit like *Botruon*; is full of Seed like small Grapes, contained under a carnosus Tegument; is very fragrant, of an acrid Taste, and of an astringent, heating, and drying Quality; with other Characters of the true Amomum, besides the Resemblance of the *Pes Columbinus*. It grows in *Turcomania*, a Province of *Armenia*, as *Job. Botero Benes* writes. *Philos. Transact.*

There are three different Plants to which the Moderns have affix’d the Name of AMOMUM. The first is the

Amomum, Offic. *Sison*, Mor. Umb. 14. *Sison Dioscoridis*, Hist. Oxon. 3. 283. *Sison vulgare* sive *Amomum Germanicum*, Park. Theat. 914. *Sison sive officinarum Amomum*, J. B. 3. 107. Mer. Pin. 113. Bot. Monsp. 242. Raii Hist. 1. 443. *Sison Cordi*, Merc. Bot. 69. Phyt. Brit. 114. *Sison, Sison, Simon, sive officinarum Amomum*, Chab. 398. *Sison quod Amomum officinis nostris*, C. B. Pin. 154. *Sium aromaticum, Sison officinarum*, Tourn. Inst. 308. Boerh. Ind. A. 57. Raii Synop. 3. 211. Dill. Cat. Giff. 139. *Petroelinum Alacedonicum Fuchsi*, Ger. 864. Emac. 1016. BASTARD STONE-PARSLEY. Dale.

The lower Leaves of this *Amomum* are long and pinnated, or having small Leaves growing opposite to one another on a common long Stalk, being about an Inch long, and not above half the Breadth, broader at the Base, and ending sharper-pointed, cut in on the Edges, having a single Leaf at the End of the Foot-stalk. They are of a bright-green Colour. The Stalk arises to the Height of two or three Feet, finely chanell’d, and divided into several Branches, on which grow the like Leaves, but much less and finer; on the Tops grow small Umbels of white five-leav’d Flowers, producing little striated Seed, about the Bigness of Parsley-seed, of a pleasant, hot, spicy Smell and Taste, something like a Nutmeg. It grows in Ditches and Banks, and moist Places, flowering in Summer; its Seed, which is the only Part used, being ripe in *August*.

The Seed is hot and dry, attenuating, and good to open Obstructions, to cleanse the Reins of Gravel; it is diuretic, and promotes the *Menstrua*, and is esteemed to be *Alexipharmic*, and as such is put into *Theriac Andromachi* for a *Succedaneum* to the true Amomum. *Miller, Bot. Off.*

The second is the

AMOMUM, Offic. Comm. Flor. Mal. 14. Plant. Ufu. 88. Barr. Icon. 571. Obl. 1393. 27. *Amomum verum*, Ger. Emac.

Emac. 1548. Raii Hist. 2. 1697. *Amomum genuinum*, Park. Theat. 1567. *Amomum racemosum*, C. B. Pin. 413. Jonsf. D. *Amomum novum Cardamomi vulgaris facie, sive Indicus racemus*, J. B. 2. 195. Chab. 127. *Elettari*, 1. Hort. Mal. 11. 9. Tab. 5. TRUE AMOMUM. Dale.

This Fruit is an Ingredient in the *Theriaca*, and is sometimes mixed with strong Purgatives, to qualify them a little. Each Fruit is divided into three Cells, and is of a very pungent Taste: It is brought from the *Philippine Islands*, and is reckon'd carminative, alexipharmic, stomachic, &c. *Geoffroy*.

It is incisive, and digesting; it resists Poison; it disperses Wind; it strengthens the Stomach; it creates Appetite and Strength; and it provokes the Menfes. *Lemery de Drogues*.

The Amomum which is reckoned amongst medicinal Drugs, and which is a principal Ingredient in the *Venice Treacle*, grows on a Tree which bears the same Name with itself, the Leaves of which are long, strait, and of a pale-green Colour; and its Flowers resemble those of the white Stock-gilly-flower: Its Fruit is pretty like the *Muscadine Grape* in Colour, Bulk, and Shape; but it is not quite so full of Grains, and is less juicy: Its Pods, which have no Pedicles, are crowded together, and glued, as it were, on a long Nerve, which they surround to the very Top, and which serves as a Support to them: In the inner Side of these Pods are found purple-coloured Grains, of an almost square Figure, distinct, and covered with slender white Membranes. The Taste of these Grains is sharp and acrid, and their Smell extremely piercing and aromatic.

The newest Amomum is always the best; it ought to have its Pods round, of a whitish flaxen Colour, weighty, and well-filled: That, on the other hand, the Pods of which are black and shrivelled, are very little, or not at all, esteemed.

A great many People confound the Amomum with the greater Cardamoms, tho' they do not resemble each other in one single Circumstance. *Savary Dictionnaire de Commerce*.

The third is called,

AMOMUM PLINII, Offic. Ger. 289. Emac. 361. *Solanum fruticosum hacciferum*, C. B. Pin. 166. Raii Hist. 1. 673. Tourn. Inst. 149. Elem. Bot. 124. Boerh. Ind. A. 2. 67. Rupp. Flor. Jen. 37. *Fruticosum Americanum, dictum Amomum Plinii*, Park. Theat. 352. *Amomum Plinii, seu Pseudocapsicum*, ejusd. Parad. 431. *Strychnodendros*, J. B. 3. 614. *Apollinaris Solani species ex Apennino*; *Strychnodendros*, *Solanum arborescens*, Chab. 523. TREE NIGHT-SHADE. Dale.

Its medicinal Virtues are esteemed to be much the same as the common SOLANUM, *Night-shade*, which see.

AMONGABRIEL, according to *Rulandus*, AMOGABRIEL according to *Johnson*, is *Cinnabar*.

AMONGEABA. This is the Name by which *Piso* calls a kind of Grass which grows three, four, or five Foot high, from Roots consisting of small Filaments, much after the manner of a Reed. The Leaves are about a Foot long, beautifully twisted, green, almost of the Figure of the Leaves of the larger Nut-bearing Palm, and a considerable Number of them on one Stalk. The Stalk at the Top bears an Ear a Foot and an half long, like, in Bulk and Shape, to the Ear of the *Milium*, or *Wild Panic*.

It is of an emollient Nature, either internally or externally applied: It supplies the Place of Mallows, and is beneficial in a TENESMUS, used by way of Fomentation.

AMOR, Love. It is no Wonder that Love has been esteemed a Distemper, as it is productive of many Disorders, especially Madness, as *Cassius Aurelianus* observes very judiciously; for as Madness is generally caused by thinking too much of one thing, nothing is more likely than Love to fix the Attention upon one Object.

Besides Madness, Love may, and certainly does, produce every Distemper which arises from a too great Laxity or Stricture of the Animal Fibres: For Anger, Envy, and Jealousy, the usual Attendants on Love, brace up the Fibres, and render them too tense and rigid. Again, Joy, Complacency, Fear, and Grief, relax the same Fibres, enervate the Solids, and impair the Action, whether Animal, Vital, or Rational.

The Seeds of Love are, no doubt, planted in the Constitution of every Man, and of every Woman, for Purposes conducive to the Designs of the Creator, and extremely beneficial to the Creature. For, besides the great End of supplying the World with People, Love incites Mankind to Action; and perhaps the little Difficulties with which it is attended, stimulate the Mind, and, in Consequence thereof, the Body: Inasmuch, that if the Desire, implanted in each Sex, of being agreeable to the other, was removed, perhaps no other great Incitement to Action would remain, except Hunger: So that what *Virgil* says of Agriculture, is applicable to Love:

----- *Pater ipse colendi*
Haud facilem esse Viam voluit, primusque per Artem
Movit agros, Curis acuens Mortalia Corda,
Nec torpere gravi passus sua Regna Veterno.

Upon the Whole, if it was not for Love, Mankind would soon degenerate into Brutality; and it only becomes criminal

or pernicious, when so excessive as not to be guided and directed to a proper Object, and with Moderation, by Reason.

It is no absurd thing to reckon Love among the Affections of the Brain, since it is a kind of Solicitude; and Solicitude is an Affection of the Mind, when Reason is employed in a tiresome Motion or Pursuit.

Love is attended with the following Symptoms: The Eyes are hollow, and weep not, but appear as if they were replete with Pleasure. The Eyelids often twinkle; and tho' the other Parts of the Body maintain their Plumpness, the Eyes of Persons in Love are contracted and sunk. There is no Pulse peculiar to Lovers, as some have thought, but it is like that of the Careful and Solicitous. When the Remembrance of the beloved Object is excited, either by the Hearing or Sight, and especially if it be sudden, the Spirits are all in Confusion, and the Pulse changes, and neither beats equal Time, nor with equal Force. Some are sad and wakeful; others, who are not conscious of their Affection, pine away in Sloth and Slovenliness, and a low Diet. But the wiser Sort, when they find themselves in Love, divert their Thoughts, and relieve themselves by going to the Baths, drinking of Wine, Gestation, entertaining Sights, and pleasant Conversation. Some Lovers ought to be terrified; for they who are always at Leisure to indulge their amorous Thoughts, will hardly get rid of that troublesome Passion. It would also be very proper to enter into a Controversy, or commence a Suit against such a Person in Love, which may affect that State of Life, or Way of Business which he has chosen; for all Means must be tried to divert his Cares and Pursuits into another Channel. *Agnet. Lib. 3. Cap. 17. Oribas. Synop. Lib. 8. Cap. 9.*

This Method of curing a Person in Love, by stirring up a Law-suit against him, is likely enough to have its Effects; but I should doubt whether a Cure of this Sort would be consistent with the old Maxim, which requires it to be performed *tute, cito, & jucunde*.

Dr. *James Ferriard* published a Treatise of Love, as a Distemper, which was printed at Oxford, 1640.

AMORIS POMA, Offic. Ger. 275. Emac. 346. *Poma majora amoris, fructu rubro*, Park. Parad. 379. *Solanum pomiferum, fructu rotundo striato molli*, C. B. Pin. 167. Raii Hist. 1. 675. Hist. Oxon. 3. 520. *Mala aurea, odore satido, quibusdam Lycopersicon*, J. B. 3. 620. *Mala aurea*, Chab. 525. *Lycopersicon Galeni*, Tourn. Inst. 150. Elem. Bot. 125. Boerh. Ind. A. 2. 69. Rupp. Flor. Jen. 37. LOVE APPLES. Dale.

AMORIS POMUM. This is a Species of *Solanum*, bearing many large winged Leaves, divided into several Segments, of a yellowish-green Colour; the Stalk is branched into many Divisions, on which, at the setting on of the Leaves, grow the Flowers, several together, each consisting of a single Flower, divided into five Parts like a Star, of a yellow Colour, with a deeper Umbo in the Middle. Each Flower is follow'd by a round Fruit as big again as a Cherry, green at first, and of a yellow Red when full ripe; in which are contained a great many flat whitish Seeds, in a juicy Pulp. It is sown in Gardens, and flowers in July; the Fruit is ripe in September, and perishes with the first Frosts.

In Italy they eat these Love-apples with Oil and Vinegar, as Cucumbers are eaten here; but they are seldom eaten with us, being of the Nature of the other *Solanum*; and therefore only used outwardly, in cooling and moistening Applications, in Inflammations, and Erysipelas; and its Juice especially is commended in hot Defluents of *Rheum* upon the Eyes. It is but seldom used. *Miller Bot. Off.*

AMORGE, ἀμύργη, the Forces or Recrement of Oil. See AMURCA.

AMPANA. This is the Name in the *Hortus Malabaricus* for the *Palma Coccifera, Folio subelliformi*, *Adas*. The Portuguese call it *Palmeiro Bravo Macho*.

AMPAR, Amber is sometimes thus called.

AMPELION, ἀμπέλιον, Vines Leaves, or Tendrils.

Hippocrates recommends these bruised, and mixed with Honey, and made up, with Wool, into the Form of a Pessary, in order to promote the Menstrual Discharges, or the Lochia. *De Natura Muliebri*, and *de Morbis Mulierum*, l. 1.

AMPELIS, a Bud described by *Aldrovandus*, and said to be delicate Food. I take it to be the *Bacca*.

AMPELITES TERRA, a Sort of black Earth, thus distinguished:

TERRA AMPELITES, Offic. Worm. *Ampelitis terra sive Pharmacitis*, Ind. Med. 8. 31. Agricola. 595. *Aldrov. Mus. Metal.* 266. *Terra Ampelites sive Pharmacitis, qua Medici utuntur*, Kentm. 3. *Lapis Ampelitis Galeni*, Charlt. Foss. 14. *Lapis obsidianus*, Mer. Pin. 217. *Carboli Theoph.* Succinum nigrum, Swenckfeld Cat. Foss. 394. *Terra Ampelitis*, Calc. Mut. 128. Gabal. 28. CANNAL COAL. Dale.

I believe Cannal Coal will not dissolve when Oil is poured upon it, which is one of the Characteristics that *Dioscorides* gives to the TERRA AMPELITIS: This, therefore, seems different from what we usually call CANNAL COAL.

The Terra Ampelitis, by some called Pharmacitis, is found in *Selucia*, a City of *Syria*. Chuse what is black, resembling small (*Oribasius* reads *μακρῆς*, long) Pitch-tree Coals, that will cleave, in some measure, into thin Bits, and shines alike in every Part; that, moreover, being levigated, will readily dissolve upon the Affusion of a little Oil. The white, cineritious, and what can't be liquefied, is to be rejected.

It has a discussive and refrigerating Virtue; is an Ingredient in Cosmetics for the Eyelids, (*καλλιβλέφαρον*) and to colour the Hair. It is also used to anoint the Vines, at the time of their Budding, in order to kill the Worms which breed in them. *Dioscorides*, *Lib. 5. Cap. 181*.

The Terra Ampelitis is more medicinal, drying, and digestive, has more of a biting, and less of a mitigating Quality, than the Terra Chia, Samia, or Selinusia. *Oribasius*, *Med. Coll. Lib. 15. Cap. 1*.

The Ampelitis Terra is also called Pharmacitis, because it is more medicinal than the other Earths; and because the Country Farmers, when the Spring comes, dilute it with Water, and so rub it about the Roots of those Vines which have sent forth Buds, that no noxious little Animals might approach to touch them. It sufficiently shews its medicinal Virtue in killing the Cnipes (Worms) which infest the Vines. No mitigating or lenitive, but a drying Quality belongs to it; for which Reason it is an usual Ingredient in drying and discussive Compositions. *Aetius*, *Tetr. 1. Serm. 2. Cap. 9*.

To supply the Want of Terra Ampelitis, you are directed to take a little more than half the Quantity of *Brutian Pitch*, by *Marcellus Empiricus*, *Cap. 7*.

AMPELITIS *sive* Pharmacitis, is a very bituminous Earth, as black as Jet; it is divided into Scales, and is easily reduced into Powder; it is taken from a Quarry near *Alençon*; there are two Sorts of it, one of them tender, the other hard; when growing old, it pulverizes of itself, and they get from it some Saltpetre.

It is proper to kill Worms, being applied to the Belly; it dyes the Hair black.

Some call it Earth of Vine, because, being in the Vineyards, it kills the Worms which creep up the Vines. *Lemery de Drogues*.

AMPELOPRASON. See ALLIUM.

AMPELOS, ἀμπέλων, is Bryony, according to *Oribasius*, *Med. Collect. L. 13*.

AMPHARISTÉROS, ἀμφαριστερός. It signifies the Reverse to AMBIDEXTER, that is, having two Left Hands; which means being clumsy, or having a perfect Use of neither. Figuratively, it imports *unlucky*, *unfortunate*.

AMPHEMERINOS, ἀμφημερινός πυρετός, a Quotidian Fever; that is, a Fever which brings on a Paroxysm, or Fit, every Day. It is derived from ἀμφι, a Greek Preposition, which imports a kind of Revolution, and ἡμέρα, a Day.

AMPHIBLESTROIDES, from ἀμφίβληστρον, a Net. The same as RETIFORMIS, which see.

AMPHIBRANCHIA, ἀμφιβράγχια, from ἀμφι, about, and βράγχια, properly the Gills of Fishes; but sometimes taken for the Fauces. The Parts about the Tonsils.

AMPHICAUSTIS, ἀμφικαυσίς. This imports a Sort of wild or mountain Barley; and, in some Writers, it signifies the PUDENDUM MULIEBRE; but I don't know that it is used in this Sense by any medicinal Author.

AMPHIDEON, ἀμφιδέων, the Orifice of the Uterus, call'd the Os Tincæ.

AMPHIDEXIOS, ἀμφιδίξιον, the same as AMBIDEXTER.

AMPHIMETRION, ἀμφιμέτριον σημάδιον. *Galen* in his Exegesis, says *Hippocrates*, in his second Book of Epidemics, means by this a Sign which manifests the Condition of the Uterus. But the Word is neither to be found there, nor in any other Part of *Hippocrates*. *Foesius* thinks that the Word ἀμφιδύκτοι, in the sixth Book of Epidemics, *Secl. 8. Aph. 38*, should be ἀμφιμέτριον, and that *Galen* alludes to this Passage.

AMPHIPLEX, ἀμφιπλήξ, according to *Ruffus Ephesus*, is the Part situated betwixt the Scrotum, Anus, and internal Part of the Thighs.

AMPHIPNEUMA, ἀμφίπνευμα, from ἀμφι, about, or around, and πνεύμα, Breath. It signifies an extreme Difficulty of breathing, in *Hippocrates*, *Epidem. L. 4*.

AMPHIPOLOS, ἀμφίπολος, a Maid-servant. This Word has no other Right to a Place in a Medicinal Dictionary, but that it is used by *Hippocrates* *Epidem. Lib. 5*. But the Case he relates in this Place is very remarkable. The Servant of *Dysiris* in *Larissa*, whilst young, felt extreme Pain in Coition, but at other times was very easy. She was never with Child. When she was about sixty, she used to be seized with excessive Pains, like those of Labour, after Noon. One Day, having eaten in the Morning a large Quantity of Leeks,

she was seized with more severe Pains than usual; and upon Examination, she felt something rough at the Orifice of the Womb; soon after this she fainted, and, during her Fit, another Woman took from her a rough Stone, as large as the Spondyle of a Distaff. After this she was well, and continued so ever after.

AMPHISBÆNA, a venomous Serpent. The Amphisbæna and Scytala resemble one another; for they are not shaped with a thick Body, tapering into a slender Tail, but are of equal Thickness throughout their whole Length; so that a Spectator is puzzled to find at what End the Head or Tail are situated. The Amphisbæna differs from the Scytala, in that it moves with either End forward, whence it takes its Name [ἀμφι either way, and βαίνει to go]. *Galen* says, the Amphisbæna is an Animal with two Heads. They say, if a big-belly'd Woman steps across this Serpent, she falls in Labour and miscarries.

The Bites of these Creatures are hardly perceptible, and much like the Punctures of Flies; wherefore they are not mortal, but cause an Inflammation like what arises from the Sting of a Bee or Wasp, tho' in a more intense Degree; so that what is good for the Stings of these Insects, will be of Service here. *Aetius*, *Tetr. 4. Serm. 1. Cap. 30*.

The Colour of the Amphisbæna is a shining White, distinguish'd with reddish Spots; its Cheeks are so large, that they conceal his Eyes; and this Circumstance hath made it said, that it is blind.

It is found in the Isle of *Lemnos*; its Bite is dangerous, and requires the same Remedies as that of the Viper. It contains a great deal of volatile Salt and Oil. Its Flesh, Liver, and Heart, are proper to excite Sweat, to take away bad Humours by Transpiration, and are a good Antidote against Poison. *Lemery des Drogues*.

AMPHISMILA, ἀμφισμίλη, from ἀμφι, on each Side, and σμίλη, an Incision Knife. A dissecting Knife, with an Edge on each Side. *Castellus* from *Galen*.

AMPHISPHALSIS, ἀμφισφαλισίς, from ἀμφι, and σφάλλω, to wander. *Foesius* translates this by the Words, *Oberratio*, *Circumductio*, *Circumactio*, *Circumagatio*. This Word, I believe is peculiar to *Hippocrates*. He uses it in his Book of *Articulis*, to express a Circumaction, or turning of the Leg, in order to replace the Head of the Femur, when slipp'd out of the *Acetabulum*.

AMPHITANE, the same as CHRYSOCOLLA, which see. *Castellus* from *Fallopian*.

AMPHODONTA, ἀμφόδοντα, from ἀμφι, on both Sides, and ὀδὸς, a Tooth. This Word is used by *Hippocrates* in his *Treatise de Arte*, as an Epithet of Animals, to express their having a Row of Teeth in both Jaws.

AMPHORA, is a Roman Measure for Liquids. It is originally a Greek Word ἀμφιφορεύς, *Iliad. 23. Odyss. 9*, by a Syncope, ἀμφορεύς; it is so called from the two Ansæ or Handles for Carriage. It is the twentieth Part of the Culeus. It contained seven Gallons one Pint English Measure. *Arbutnot of Antient Measures*.

AMPLEXATIO, or *Basiatio*. The Alchymists call thus a kind of Union betwixt their Philosophical Mercury, which they call the *White Female*, and by which they mean *Regulus of Antimony*, and the *Red Husband*, by which they mean Gold. This Embracing some of them express in Terms, not very decent.

AMPOTIS, ἀμπατίς. It signifies properly the Recess or Ebb of the Tide. But *Hippocrates*, who was of *Cos*, one of the *Grecian* Islands, and must have had many Opportunities of observing the Tides, very elegantly applies this Word to the Recess of Humours, from the Circumference of the Body, to the internal Parts.

AMPULLA, a Vessel of an indeterminate Capacity, and a particular Form; for it must have a Belly like a Bottle, Jug, or Crewet, in order to be an Ampulla.

In Chymistry, any Vessels are called *Ampullæ*, which have large Bellies, as Cucurbits, Boltheads, and Receivers.

Hildanus calls the first Appearances of the Heart, Liver, and Brain, in a Fœtus after Conception, *Ampullæ* from their Shape.

AMPULLASCENS. The Alveus Ampullascens is the most tumid Part of *Pecquet's* Ducts, which convey the Chyle from its Receptacle, to the Subclavian Vein.

AMPUTATIO, Amputation.

Celsus, who lived more than an Age before *Galen*, is the first Author who gives us a Description of Amputation; and tho' his Surgery be, as is said, taken from *Hippocrates* and *Asclepiades*, he quotes neither of them with respect to that Operation.

Hippocrates treats of a Gangrene and a Sphacelus; what is putrefy'd, he says *, must be cut off, but he does not describe the Amputation of a Member. *Asclepiades* lived an Age before Christ †; we have nothing of him concerning this Affair, and do not know whether he ever performed the Operation. As

* De Articul. 4. Observ. 17. de Morb. Vulg. Lib. 2. Secl. 7. Epidem. Lib. 7.

† *Daniel Le Clerc*, in his History of Physic, Edit. 1723. p. 392. says, that this Physician was in great Reputation at *Rome*, during the Life of *Mithridates*, that is to say, about the Middle of the thirty-ninth Century.

much might be said of *Herophilus* and *Erasistratus*, who acted as Surgeons †. We find then no Description of this Operation before *Celsus*; however, we cannot doubt, but it was performed before his Time, and that even the Manner of it was described in some Authors, whose Works are lost. In all Probability, the Operation was never performed in those Times, nor ever since, till the fifteenth Century, but on occasion of an Arm or a Leg affected by a Sphacelus. It seems to have been done but very seldom, because the Patients were always in imminent Danger of their Lives, or, according to *Celsus* ‡, died, for the most part, of an Hemorrhage, under the Operation.

We are not to wonder at this; for *Celsus* made no Ligature above the Place of Amputation, to compress the Vessels, and prevent an Hemorrhage; at least, he does not mention it in the Description of his Operation, which is as follows, *Lib. 7. Cap. 23.* “An Incision is to be made with the Knife in the “Flesh, between the sound and the corrupt Part, as far as the “Bone, in such a manner as not to do it against a Joint, and “rather to cut off a sound Part than leave any thing unsound, “When you come to the Bone, the sound Flesh is to be drawn “back, and the Bone is to be cut upon quite round it, that “it may be perfectly bare (of the Periosteum). This done, “the Bone itself is to be amputated with the Saw, as near as “is possible to the sound Flesh; then the Face of the Bone, “which was exasperated by the Saw, is to be smooth’d, and “the Skin is to be brought over it; in order to which, and “that it may the better cover it on every Side, it ought to be “lax. Where the Skin cannot reach, the Place must be “covered with Lint, and a Sponge dipt in Vinegar must be “bound upon it. The Cure must afterwards be managed as “a Wound in which a large Suppuration is to be prevented.”

In this Description we see no Means to prevent an Hemorrhage; and this is the very Reason why the Patients often dy’d by the Loss of Blood under the Operation. But, what is surprising, we find no Method for that Purpose, in any Author who has described that Operation, till the sixteenth Century. *Paulus Aegineta*, *Avicenna*, *Guido de Cauliaco*, say not a Word of it. This last, who lived about the Middle of the fourteenth Century, made two Ligatures, one above, and the other below the Place of Amputation; but he does not say, that he made them to prevent an Hemorrhage, or so much as to take away the Sense of Feeling from the Part. We may well imagine, that he did it only to keep down the Flesh tight and firm, that the Incision with the Knife might be made with the greater Ease and Smoothness. We know not whether *Vesalius* used a Ligature to stop an Hemorrhage or not, because we do not well comprehend his Description.

Bartholomæus Maggins, who wrote about the Middle of the sixteenth Century, and whose Works are collected by *Gesner*, made a Ligature upon the sound Part, above the corrupted. They drew this Ligature very tight, to deprive the Part, in some measure, of Feeling; but there is not a Word said throughout the Whole, concerning Means to prevent an Hemorrhage during the Operation. He says, that *Celsus* made a Ligature above the corrupted Part; but *Celsus* has not describ’d his Operation in the same manner that *Maggins* reports it; and you see, by the Quotation above, that he says nothing of that Ligature. *Botallus*, Physician to *Charles IX.* says, that in his Time they made three Ligatures; one, doubtless, to take away the Feeling, tho’ he does not expressly say so, and the two others above and below the Place of Amputation; but not a Word is said of the Means to prevent an Hemorrhage.

Paré, Surgeon to *Charles IX.* tells us, that when we are determined to make an Amputation, we must draw the Skin and Muscles towards the sound Part, and make a Ligature just above the Place that is to be cut, with a strong and thin Fillet, which, he says, serves, first, with the Help of the Assistants, to keep up the Skin and Muscles in a raised Posture; secondly, it prevents an Hemorrhage; thirdly, it takes away the Sense of Feeling from the Part. This is the first Author, that I find, who talks clearly of the Manner of preventing an Hemorrhage during the Operation.

Pigra, *Fabricius ab Aquapendente*, *Hildanus*, and all the Surgeons who came after him, put his Method in Practice. ’Tis true, this Ligature did not constantly and totally suppress an Hemorrhage; for the Vessels bled more or less in Spite thereof, which was an Inconvenience, that sometimes endangered the Life of the Patient.

The *Sieur Morrel*, a Native of *Franche Comté*, who was a Surgeon in the Army, and a very ingenious Person, discovered a surer Method of stopping the Blood. In 1674. he invented the Tourniquet, as it is now used, by means whereof, the Operator has it in his Power, either wholly to stop the Blood, or let

it run more or less, as he thinks fit to compress the Part. It takes away the Sense of Feeling, so that the Patients feel none of those acute Pains when the Flesh is cut, and the Ligature of the Vessels is perform’d, which makes them support that cruel Operation with the more Patience; an Advantage to be reap’d but in an imperfect manner from the Method of *Paré*.

One Defect of the Tourniquet, ’tis said, is, that it pinches the Skin, and causes very acute Pains. This is true, when the Surgeon has not the Address to accommodate it in a right manner; but with a little Care and Attention, and placing a Piece of Paste-board at the Side of the Stick, that Accident is avoided.

Another Defect imputed to the Tourniquet is, that, tho’ it prevents an Hemorrhage after the Operation, we dare not leave it on the Part, because it entirely suppresses the Circulation of the Blood below the Place where it is apply’d, by which means that Part is in Danger of a Mortification. *Monsieur Morel* did not pretend to make any other Use of his Tourniquet, than as a sure means for preventing an Hemorrhage during the Operation, and till he had secured the Patient from such an Accident by the Ligature of the Vessels, which none had ever been able to do before. Besides, it is very rare to see an Hemorrhage break out afresh, when the Ligature is made according to the manner, of which we shall speak in the Course of this Memoir, after we have taken a View of the Methods formerly used in cutting the Flesh.

Neither *Hippocrates* nor *Galen*, as I said, have given us any Description of Amputation; it would be in vain then to search in these Authors for the Manner in which they cut the Flesh, or how they stopp’d the Blood in the Vessels. They have only left us, in general, their Method of stopping Hemorrhages; but have not told us a Word, in particular, of the Means of stopping the Blood in an Amputation.

I have been surpris’d not to find the Operation of Amputation in *Galen*, who describes the Operations of Surgery in so clear a manner. He wrote of a Gangrene and Sphacelus*; he says, after *Hippocrates*, that the corrupt and putrid Flesh must be cut away; but says no more of it. It appears however, that this Operation was practis’d at *Rome* in his Time; for *Celsus*, who was a *Roman*, and lived about a hundred Years before *Galen*, has described it, and practis’d it himself, or saw it done by others. *Galen* cites neither Physician nor Surgeon who performed that Operation: He ought, at least, to have cited *Celsus*, who must have been in great Reputation for Surgery; but I do not so much as find the Name of *Celsus* in any Place of *Galen*’s Works.

We have inserted, in the Beginning of this Discourse, the Description which *Celsus* has given of the Operation. We have seen, that he cuts the Flesh to the very Bone, and does it in the quick, rather than in the mortified Part. He saws off the Bone, and brings the Skin over the Stump, and no doubt over the Mouths of the Vessels, tho’ he does not say so. But how can that Skin be brought to cover the Bone and the Vessels? We don’t find, that he takes the Precaution to draw up the Skin and the Flesh above the Part, unless we are willing to suppose, that he would be so understood. Besides, it does not appear, that he form’d a Label of Skin, as some Surgeons did at the End of the last Century; the thing is so remarkable, he would not have fail’d to speak of it. He cut very near the mortify’d Flesh, *inter sanam vitiatamque Partem*, which was not the way to facilitate his leaving a Label of Skin. He did not pass a Thread across the Flesh, and into the Skin, as it has been the Practice since his Time, in order to keep down the Skin tight upon the amputated Part. And yet it is plain by the Description, that he intended the Skin should cover the Bone, and reunite with that and the Flesh; and in order that this might be done with the greater Facility, he left the Skin to hang loose; but this could not be effected without drawing up and raising that Skin above the Amputation. But he does not say so much; his Words are only these; *Supraque inducenda Cutis, quæ sub ejusmodi curatione laxa esse debet.* He took care to clear the Face of the Bone from those Asperities which the Teeth of the Saw might have produced on it, and which require Exfoliation; and, in the last place, he applies an Astringent to the Vessels, but mentions nothing of a Caustery, or Ligature of the Vessels. Such a Proceeding would be contrary to his Design, which, in all Probability, was to close up the Orifices of the Vessels, with the Skin and the Flesh brought down along with it; and by that means to prevent an Hemorrhage, and unite them all together. He thought it sufficient to put some Tow or Lint to the Part where the Skin could not reach, and over all to apply a Sponge dipt in Vinegar. By this Method he avoided a Suppuration, and healed up the Wound with great Expedition. This is exactly the Method

† Mem. Acad. An. 1725. p. 11.

‡ Lib. 7. cap. 33. *Sed id quoque cum summo Periculo fit; nam sæpe in ipso Opere, vel Profusione Sanguinis, vel Animæ Defectione moriuntur.*

* But this too is not performed but with the utmost Danger; for the Patients often die under the Operation, either of an Hemorrhage, or “Painting.”

* Lib. 2. ad Glauco. cap. 9. In Lib. Hippocr. de Fract. Comment. 11. De Meth. Med. lib. 2. cap. 9.

of *Verduin* and *Sabourin*, one a *Dutchman*, and the other of *Geneva*, who, towards the End of the last Century, did both at one time set up the Practice of this Operation, with leaving a Part of the Skin and Flesh in Form of a Label, for the more easy covering of the Bone and the Mouths of the Vessels, which they call'd the Operation of Amputation with a Label [*l'Operation de l'Amputation à Lambeau*]. By this way they avoided a Suppuration, and also shortened the Cure of the Wound.

It were to be wish'd, that *Celsus* had explain'd himself more clearly on the Means he used to keep the Skin loose. We find in our Times, that whatever Endeavours are used to draw back the Skin and Flesh before they are cut, we are not able to bring back the Skin over the Bone after the Amputation, at least, not to keep it there with any manner of Facility; which obliged several celebrated Surgeons to retain the Skin and Flesh upon the Wound, by means of a Thread passed across them. We shall take Notice of this, when we come to speak of those Surgeons, who have described this Operation at the End of the sixteenth and in the seventeenth Centuries.

It appears, from all that I have just now said, that there are abundance of Obscurities in the Description of *Celsus's* Operation.

Paulus Aegineta, who, according to *Dr. Freind*, lived in the seventh Century, is the first, that I can find, who, since *Celsus*, has described this Operation, *Lib. 6. Cap. 84*. He does not want Obscurity any more than *Celsus*, and 'tis not easy to discover whether he cuts in the sound or sphacelated Part. He relates the Manner in which *Leonidas* perform'd that Operation, and says, that before sawing the Bone, it was necessary to put a Linen Cloth, or broad Fillet upon the Part that was cut, to hinder the Saw from touching it, and so putting the Patient to Pain; which shews, in some manner, that he cut in the quick Part; and to stop the Hemorrhage, he scared the Orifices of the Vessels with an actual Caustery.

Avicenna, who lived in the twelfth Century, advises cutting in the Sphacelus, to avoid an Hemorrhage, and to apply heated Irons to the mortify'd Part, that is left under the sound.

Guido de Cauliaco cut the Flesh between two Ligatures, and, after the Example of *Paulus*, apply'd a Linen, or broad Fillet upon the cut Part, to defend it from the Saw: He then saw'd off the Bone, and cauterized the Flesh with hot Irons, or boiling Oil.

Vesalius, who wrote in the sixteenth Century, has given a Description of this Operation, in a manner which is a little confused. He speaks of a Ligature, but 'tis impossible to discover how or for what Purposes he used it. It appears, that he cut the Flesh with a hot Knife; but we can only guess whether it were in the quick or in the dead Part. At last he applies hot Irons to the large Vessels, and to the Flesh, which he cauterizes till the Patient feels the Pain. This makes it conjectured, that he cut in the mortify'd Part, and that the Vessels did not bleed afterwards; then he cauterized the Fore-part of the Bone, to make it exfoliate the more readily.

Bartholomæus Maggius, Cotemporary with *Vesalius*, cut the corrupted Part, and separated it from the sound; and after he had saw'd off the Bone, applied hot Irons to the Vessels, and the Flesh that was half corrupted, or dipp'd the Member in boiling Oil, alone, or mix'd with Sulphur, till it penetrated to the quick; and this was very near the Method of *Guido de Cauliaco*.

Botallus relates the Operation in the same Manner as *Maggius*, only makes no mention of the boiling Oil. But this Gentleman found it took up too much Time to perform the Operation this way; and besides, in his Opinion, it put the Patient to too much Pain in sawing of the Bone, from which it was impossible to take off all the Flesh that stuck to it, but that some would be mangled with the Saw, especially when there were two Bones to be sawed. He contrived therefore a Method to cut off a Limb with one Stroke; a Method, he says, the surest, easiest, and quickest, that can be imagin'd. For this Purpose he made use of two large Knives, like Butchers Cleavers, one of which was fastened in a Block of Wood, and placed between two wooden Posts; the other was fixed in a Piece of Wood, that slid up and down between the Posts by means of Grooves, after the manner of the Machine used for driving Piles. The Member was placed between the Posts upon the under Cleaver, and the Piece of Wood, which was raised aloft, and charged with Lead to make it the more ponderous, being let fall, the Limb was cut off in an Instant, by the Meeting of the two Knives, with very slight Pain to the Patient. A Caustery was immediately applied to the Vessels, and the Hemorrhage was very inconsiderable.

This Method has been censured on account of the Contusion which the Flesh suffered; but principally for fracturing the Bones, which broke into several Splinters, and rendered the Cure difficult. It was for this last Reason, I suppose, chiefly,

that this Practice was not at all followed. *Botallus* cites one *Mr. Jaques*, surnamed *Regius*, a Surgeon, who practised this Operation with Success. *Hildanus* strongly opposed this Method.

Paré, Cotemporary with *Botallus*, cut the Flesh in the quick with a crooked Knife, and made use of a broad Fillet, cut in two, like *P. Aegineta* and *Guido de Cauliaco*, to raise and cover the Flesh, and defend it from the Saw. He then cut with an Incision-knife, a little crooked, the Flesh between the two Bones, when an Amputation was to be made of the Leg. After this he saw'd off the Bones, and then took hold of the Vessels with the Forceps, called the *Crow's-bill*, stretch'd them out, and ty'd them up with a double Thread together with the Flesh, if any happen'd to be in the way. He then took off the Fillet, that bound the Limb above the Amputation, and, passing a Needle and Thread through the Lips of the Wound, making four Holes crosswise, he drew over the Bones the Skin and Muscles that were cut, tho' only so far as till they were extended to the same Length as before the Amputation, not drawing the Threads too close. If the Ligature of any Vessel unloosed, *Paré* did not trouble himself to search for it with the *Crow's-bill*, for so he would never have found it; but, without tying up the Member with a new Ligature, ordered it to be grasp'd by a strong Man, who press'd hard on the Part where the Course of the Vessels lay; then he took a square Needle well edg'd, four Inches long, and threaded with a good Thread three or four times doubled, and pass'd it into the Flesh at half a Finger's Breadth from the Orifice of the Vessel, and above it; then, carrying it round the Vessel, he repass'd it below the same, and drew it out an Inch from where it enter'd. Between the two Ends of the Thread, he placed a small Bolster, and upon this he made a Ligature. After this, he apply'd Astringents to the Wound, and dress'd it on the fourth Day.

Paré makes us observe, that in an Amputation of the Leg, he causes the Member to be held bended, because after the Section of the Bone, it must be extended, that the Vessels, which are to be ty'd, may the better appear. He says, he is the first who found out this Expedient. I could never conceive how it should produce the Effect which he ascribes to it: For as the Vessels are united with the Flesh which surrounds them, they stretch or contract together with it by the same Springs. *Paré*, however, made Discoveries of greater Importance; for he was the first who practised Ligatures of the Vessels in Amputation; and notwithstanding the Fury of *Gourmelin* against them, this Method has been found very serviceable, and has been followed.

I find yet more new Inventions of *Paré*; he does not indeed claim them for his own; but I have met with them nowhere else. One is, that he is the first who introduced the Use of the crooked Knife for cutting the Flesh. It does not appear, that *Maggius*, who wrote but a little time before *Paré*, used it; he says nothing of it in his Description. I would not however pretend to be sure, that it was never made use of before *Paré*; there is a Place in *Botallus* which may make us suspect the contrary. In the Description he gives of the Manner of operating in his Time, he uses only the Word *Cultra* * the Ablative Case, without saying whether the Knife was crooked or not; but his Commentator *Van Horne* says, *Cultrum intelligi. Sicut corniculatæ Lunæ falcatem*, "He means such a Knife as is falcated like the horn'd Moon." *Botallus* makes use of the Term *Novacula*; but *Hildanus*, who used a crooked Knife, calls it also *Novacula*.

The other new Invention, or Improvement, which I have observed in *Paré's* Description, is, that he cuts the Flesh between the two Bones of the Leg; for this Purpose he made use of an Incision-knife a little crooked. It is not certain, that *Paré* was the Author of these two last Inventions; he would not have fail'd, it is probable, to have valued himself on their account, as well as the preceding, since they were of great Service, and have been constantly used since that Time.

There is still another thing, which I don't find in any before him, and which he does not ascribe to himself any more than the two last; it is this: After he had ty'd the Vessels, he brought the Skin and Flesh over the Bone, and held them there, by running two Threads crossing one another over the Lips of the Wound. This Expedient was doubtless practised in his Time, but it was of no Use, and even impracticable on some Occasions. It was of no Service, first, when the Flesh was cut in the mortify'd Part, because the putrid Skin and Flesh would not bear Perforations of the Needle, but must easily break away. Secondly, they who cut in the quick, and applied hot Irons over all the Surface of the Amputation, could make no use of it, because of the Crust formed there, and because the half-roasted Flesh would easily break out: And even they who made no use of Fire at all, found themselves oblig'd to disuse it, because, when the Threads were drawn tight, it caused much Pain, and excited an Inflammation in the Part,

* De Vuln. Sclop. cap. 22. *Duplici modo Chirurgicalis Ars, dum fas est, amputare solet, nempe Serra & Cultra*. "The Surgeon's Art is exercised in Amputation, when the Case requires it, two ways, that is, with a Saw or a Knife."

which obliged them to cut the Threads sooner than they intended. It could do no Service, if the Threads were not drawn somewhat close; and Bandage alone was sufficient to answer the Intention proposed by this Method.

Daniel Semertus has described Amputation after the same Manner as *Paré*.

Pigray differs not from *Paré*, but in that he says, when he could not easily take hold of the Vessels with the Crow's-bill, his Manner was to cauterize them with an actual Cautery.

Guillemeau is of the same Opinion; but besides, he makes a Ligature of the Vessels after a particular Manner. He pierces the Skin above the Amputation with a good Needle and Thread, which he carries above and beyond the Vessel, and brings it out under the Skin a Finger's Breadth from where it entered, and by this means takes in the Vessel and the Flesh, which he binds tight by tying the two Ends of the Thread upon a small Bolster, put there to hinder the Thread from cutting the Skin. This Method does not appear to have been followed by any but *Dionis*, who too has made some Alteration in it.

Fabricius ab Aquapendente, who wrote in the Beginning of the seventeenth Century, cut the Flesh an Inch within the Sphacelus, after the Manner of *Avicenna* and *Vesalius*. By this Method, he said, he avoided the Hemorrhage and the Pain. Afterwards he apply'd Fire to the Place till the Patient felt the Heat, and a Crust was formed upon the Mouths of the Vessels.

The Practice of this Method has at last been quite abandon'd, because it is subject to several Inconveniencies. The first is, that whatever Precautions you take to burn away all the mortify'd Part which is left under the quick, 'tis to be feared there will remain enough to produce a Corruption in the sound Part. A second Inconvenience is, that the sphacelated and cauterized Part being separated from the quick by Suppuration, there remains a long Stump of a Bone, that sticks out, and very much retards the Cure of the Wound, which is not easily consolidated.

Marcus Aurelius Severinus gives the same Description of the Operation as *Paré*, but differs from him, in that he makes no Ligature of the Vessels, but only brings the Skin over the Wound. He covers the Vessels, and retains the Skin over them, by passing the threaded Needles across. The Inconveniencies of this Method have been made to appear.

Guilielmus Fabricius Hildanus, after tying the Limb very tight, to suspend the Circulation of the Blood, binds it down to a Bench with a Fillet, and draws over it a sort of a leather Sleeve, which may be closed at the End like a Purse. He then cuts the Flesh in the quick home to the Bone, either with a Razor, or a crooked two-edged Knife; he lays the Bone bare of the Periosteum, and when there are two Bones, he cuts the Flesh between them with an Incision-knife bent a little crooked; after which, he envelopes the cut Flesh by drawing the Strings of the Sleeve, and by that means pulls it back, and raises it; he lays the Bone bare, and prevents the Blood that comes out of the Vessels from covering the Place where he is to apply the Saw. Then he saws off the Bone, and, taking off the Sleeve and Fillets, applies an actual Cautery to the Vessels, till there is a Crust form'd for stopping of the Blood.

What is peculiar in *Hildanus* is, first, the making use of a Bench, to which he binds the Member that is to be amputated. But this appear'd to be very useless, and might, possibly, be troublesome; which was the Reason, that he was not follow'd in this Particular. In the second place, he uses a sort of Sleeve of Leather, which is also more troublesome than useful, since a wide Linen Fillet, cut in two at one End, would with greater Ease and Readiness answer the Purpose. *Hildanus* also sometimes made use of a red-hot Knife to cut the Flesh, and of an actual Cautery for stopping the Hemorrhage from the Vessels, especially when the Member was sphacelated. But, according to him, a Ligature would be sufficient, if the Patient were young, robust, and plethoric, in which Case he makes his Ligature like *Paré*. He is wrong in quoting *Celsus*, *Galen*, and *Avicenna*, for the Ligature of Vessels in Amputation; for they never used any but for Vessels that were opened by Wounds, as I observed before.

Hildanus brings the Skin and the Flesh, as far as possible, over the Bone, without keeping them there by a Thread passed through the Skin and Flesh crosswise, which he disapproves for the Reasons above-mentioned.

Vigier, who published his surgical Works about the Middle of the Century, made an Amputation, after the same Manner, and with the same Precautions, as *Pigray*. *Barbette* did the same; he wrote a little later than *Vigier*.

Nuck closely followed their Steps: He is the first who speaks of the Tourniquet, which Mr. *Morel* invented for preventing the Hemorrhage; but he found the Ligature so painful, that he chose rather to make use of an actual Cautery. In this Point he is mistaken; for a Ligature of the Vessels well made is less painful, and surer, than an actual Cautery. *Nuck* advises us to use a sort of Mushroom, which he calls *Bouiss*, and we *Puff-balls*, which is commonly used in *Germany* and *Holland* for stopping of Hemorrhages.

Charrière, *John-Baptist Verduc*, and *Dionis*, have done nothing but copy preceding Authors in their Descriptions of Amputation. But *Dionis* gives us two new ways of stopping the Blood by a Ligature of the Vessels. In the first, he ties up the Vessels with a Needle and waxed Thread, and makes use of a *Valet à Patin*, [Nippers with a Ring] with which he takes hold of the Vessel, and pulls it out from the Flesh; he winds the Thread about the Vessel, and after passing the Needle through the Extremity of the Vessel, ties the Thread, and fastens it in such a manner as not to be thrown off by the Pulsation of the Artery. In the second Method, he takes two Needles threaded in like manner with waxed Thread; with one of them he pierces the Flesh above the Vessel, and having passed it through the Flesh and Skin, he draws it out two Fingers Breadth above the Amputation. With the other Needle he enters the Flesh and Skin below the Vessel, and pulls it out half a Finger's Breadth from where the other Needle came forth; he then lays between them a little Bolster, on which he ties the two Threads with a Knot, and so closes the Vessel. This second way differs not from what *Guillemeau* speaks of, except in that the latter uses but one Needle.

The *Valet à Patin* is a sort of Nippers, invented about the Middle of the last Century, and not much used at present. M. *Garangeot*, Master Surgeon at *Paris*, gives a Description of it with a Figure. When that Instrument began to be used, there went over it a Thread with a sliding Knot. They drew out the Artery with the *Valet à Patin*, and ty'd it with the Thread in a Knot, that could not slide. This Invention was subject to two Inconveniencies: First, If the Thread was drawn a little too tight, to prevent its slipping, it would cut by degrees the Artery, which being ty'd at its Extremity, would separate too soon, and be followed by a new Hemorrhage, more dangerous than the former. Secondly, If the Ligature was made a little too loose, the continual Pulsation of the Blood would by degrees push the Thread to the Extremity of the Vessel, where it would slip off. *Dionis* was willing to remedy this Defect by passing a Thread through the Vessel, in the way that he first proposed; but this was too troublesome a Method to be followed, and his second was more so, and besides put the Patient to greater Pain. At present, they tie the Arteries after the Manner of *Paré*, which is the most simple Method, and followed by all good Artists. They pass the Needle, as I said before, through the Flesh which surrounds the Artery, and fasten the two Ends of the Thread with a Knot upon a small Linen Bolster. *Dionis* tells us also, that he could stop the Blood with a Button of Vitriol, which was practised and recommended by several Surgeons of the last Century.

Cyprus Vitriol, which is what is used to cauterize the Offices of the opened Arteries, and raises a good Eschar on the Place, does not so readily stop the Blood as an actual Cautery and Ligature. It must liquefy, in order to insinuate into the Pores of the Flesh; so that this Remedy works but slowly. The Blood would soon break through the Barrier opposed to it, if we did not take great Precaution. They who used this Method, laid graduated Compresses on the Button of Vitriol, and other long Compresses on the Course of the Vessels, in such a manner, that by the Help of a pretty tight Bandage, the Flesh might be compress'd upon the Vessels.

A Servant must be sure to attend, in order to keep his Hand continually upon the Stump. We ought indeed to take the same Precautions in all other Methods of Amputation; but this, in particular, requires the most careful Attention.

As to the rest, we must avoid making use of strong Suppuratives, for fear of making the Eschar separate too soon, and fall off before the Mouths of the Vessels are entirely closed, and quite stopp'd up.

Here it will not be foreign to my Purpose, to explain the Action of Escharotics. I shall give you my Conjectures about the Matter, which is full of Difficulties, as well as many others. I am always for running this Hazard of exposing my Sentiments, because it will doubtless engage some able Naturalists to examine them with Attention, and perhaps propose such as are more probable, which will be received with Pleasure.

We make use of two sort of Cauteries or Caustics in general, which are, the *actual* and the *potential Cautery*. The actual Cautery is Fire, and all burning Bodies, as heated Iron, very hot Water and Oils, &c. When these are apply'd to any Part, their Heat penetrates the Flesh, where the Air is included in the circulating Liquids. This Air is rarefy'd and expanded to an extraordinary Degree by the great Heat. This violent Expansion separates and disunites all the Parts in which the Air is contained, and so destroys their Structure. The expanded Air easily escapes through the Pores and Interstices of the Flesh, whose Contexture it has thus destroy'd; and carries with it, at the same time, all the aqueous Particles contained therein; which is the Cause of the drying up of the cauterized Part, and the forming of a Crust upon it.

Melted Lead, melted Sulphur, and very hot Oils, which some make use of, act after the same Manner.

I make

I make three Sorts of *potential* Cauterics, according to the Parts on which they act. The first act only on the Flesh uncovered of its Skin, the second on the Skin and the Flesh, and the third only on the Skin.

The Cauterics of the first Sort are *Cyprus Vitriol*, *Arsenic*, the *Sublimate Corrosive*, &c. These make no Eschar but in the Flesh, and make none at all when apply'd upon the Skin. *Cyprus Vitriol* is what is commonly used to cauterize the Vessels, because *Arsenic*, and the *Sublimate Corrosive*, act too slowly, tho' otherwise they make a good Eschar. These Salts absorb the Humidity which dissolves them, by means of which they are introduced into the integral and extremely sensible Parts of which the Flesh is composed. The Blood, which circulates in those Parts, continually supplies them with new Humidity, which probably unites with the saline Particles in proportion as they arrive, which occasions these Particles to penetrate more and more into the Flesh, where they still find new Humidity, which gathers about them; hence the Pores, which contain them, must be considerably enlarged, and the solid Particles, which compose the Partitions between them, are obliged to give way, and separate; by which means the Texture of the Fibres, which compose the Vessels and the Flesh, is quite subverted, and forms a Substance which is no longer Flesh, nor capable of receiving Nourishment.

The *potential* Cauterics of the second Sort are of several Kinds; some of them are liquid, others solid. The liquid cauterize the Skin and the Flesh, at the Instant they are apply'd; such are Oil of Vitriol, Spirit of Nitre, Aqua Regia; their Action is very quick. Spirit of Salt, and Spirit of Vitriol, cauterize but slowly, and are seldom used alone, but in Conjunction with some metallic or saline Particles. Butter of Antimony, Butter of Arsenic, the Oil or Liquor of Mercury, which proceeds from the Washings of Turbith Mineral, are more frequently used.

Solid Caustics are either metallic or saline. The metallic are *Lapis infernalis*, made with Silver or Copper, dissolved in Spirit of Nitre, or Aqua-fortis.

Saline Caustics are in common Use, and properly called *Caustics*. They are made of Lime and Ashes of Tartar, &c. They prepare them also from the Lye of the Soap-houses, which is composed of Kali, Quick-lime, and Copperas, &c. But these are not so good Caustics as the preceding.

These Caustics burn and cauterize the Skin and Flesh, and produce an Eschar, without causing any great Pain.

In order to explain the Action of these Caustics, you must observe, that generally, all Bodies which have endur'd a strong Fire, are Caustics. Some of these lose that Causticity in cooling; such are all *actual* Caustics. Others preserve their Causticity in cooling, which is the Case of *potential* Caustics.

Caustics of the third Sort act upon the Skin. These are improperly called *Escharotics*, for they make no Eschar; it does not so much as appear, that they act upon the Epidermis, which remains whole and entire. I would not place them in this Rank, did they not work very nearly the same Effects as are produced by very hot Bodies, which remain but a very short time on any Part. They produce nothing but Vesicles on the Skin, and for that Reason have the Name of *Vesicatories*.

In the Number of Vesicatories are rank'd,

Cantharides, which are of most frequent Use.

The *Ranunculus Tuberosus* major, *J. B.*

The *Flammula Ranunculus*, *Dod.*

The *Flammula*, *Dod. pempt.*

The *Flammula altera*, *Dod.*

The *Flammula Jovis Surrecta*, of *Ger.*

Fabricius ab Aquapendente chose rather to make use of this Herb than Cantharides, because it occasions no Disorder in the Bladder, as Cantharides sometimes do, in his Opinion. For my part, I never knew any ill Accident happen from the Use of them, tho' I have ordered their Application a vast Number of times.

They also use very often the Root of *Thymelæa* [Flax-spurge]. *Petit in the Memoirs of the Royal Academy of Sciences* 1732.

Having given the History of Amputation, I shall proceed to specify the Operations requir'd for the Amputation of particular Parts, as now practis'd, from *Heister*.

Amputation of supernumerary Fingers.

Children are sometimes born with supernumerary Fingers, which are generally mis-shapen, and inconveniently placed. These Fingers are not all of the same Nature. Some have Bones and Nails; others want them, and appear to be nothing but carnosus Excrecences. If any of these are troublesome, or deform the Hand, they ought to be cut off. If there are no Bones in them, the Knife is most convenient; but if there are Bones, a strong Pair of Sheers will better do the Business, by taking off all together. Sometimes more than one of these Fingers are found upon the Hands of Infants, who are too infirm and tender to bear immediately the Repetition of such an

Operation, and the Pain attending it. In this Case it is safest, after the Excision of one Finger, to allow so long an Interval; that the Wound shall be entirely heal'd before you proceed to amputate the other. The Flux of Blood is easily stopp'd with Lint and Compresses, either dry, or wet with Spirits of Wine, and the Wound is readily healed with a Vulnerary Balsam, as other Wounds. It will not be foreign to the Purpose to mention here, in few Words, a Case of this Kind, which I myself was concerned in. An Infant about three Months old had a very long preternatural Finger growing to the Thumb, (See *Tab. 33. Fig. 15.*) and had a strong Bone in it; but instead of a Nail at the End, a Substance like a Cock's Spur protruded. I made an Incision quite round the Integuments, and then with a Pair of Sheers took off the Bone; this done, I stopp'd the Bleeding with Lint, and Compresses wetted with Spirits of Wine, and dress'd the Wound with a Vulnerary Balsam, which soon heal'd it. I could here produce many Instances of Cures of this Kind, which I have performed both in the Hands and Feet; but one Case is sufficient, as the others are much of the same Kind, and the same Method of Cure was observed in all.

Amputation of the Fingers.

The Fingers require Amputation, when they are so lacerated or bruised by Bullets, or other hard Bodies, that they cannot be restor'd to their former State; or are totally mortified; or being indurated, or affected with a Caries, or Cancer, cannot be cur'd by other Treatment.

But Surgeons should be very careful not to cut off any bruised or fractur'd Fingers, whilst there remain any Hopes of saving them: Therefore if the Fingers are only moderately broken, or gangren'd, let some spirituous and resolving Fomentation be judiciously apply'd, in order to prevent their farther Corruption; and let the Fragments of the Bones be carefully replac'd, and treated in the manner directed for Fractures.

If any Parts of the Fingers are so much fractur'd as to be almost entirely divided from the rest of the Hand, in this Case they may immediately be separated from it with the Knife or Sheers. The same Rule is to be observ'd when a Finger is totally mortified; for a Delay, at such a Juncture, would be attended with great Danger.

But if a Finger should be cut, by a sharp Instrument, almost off, if the Wound is fresh, however bad, it will be then better to replace it in its former Situation, than wholly to divide it; and even if the Part is quite divided from the Hand, provided the Wound is oblique, it will be prudent to fix it in its proper Situation, and to try by Degrees to unite it: For it is better to attempt a Union of the Parts this way, tho' your Labour may sometimes be in vain, than rashly to destroy all Hopes, by cutting off the Finger, which perhaps might have been sav'd.

Heister gives an Instance of a Butcher's Wife, who entirely cut off a Finger, by an oblique Wound, with a Cleaver; she immediately replac'd it, and secur'd it with Bandage, and it united without farther Applications.

Amputation of the Fingers is perform'd three ways: First, With the sharp Forceps, or, which is preferable, especially in Children, with a strong Pair of Sheers.

Or, secondly, with the Chisel and Mallet, by which the Part is very readily cut off at one Blow (See *Tab. 33. Fig. 17.*): This Operation I have performed several times in cancerated and cariated Fingers; and also when the Bone has been corrupted. *Reenhuyson*, in a *Spina Ventosa*, also has done the same upon a scirrhous great Toe with Success, whatever some People may think to the contrary.

Or, thirdly, a mortified Finger is to be taken off with a Knife at the Joint, leaving Skin enough to cover the End of the Bone. This Method of Amputating is preferable to both the other, as the Work is done without any Danger of splintering the Bones, and thereby causing another Caries. By this Method I have frequently cut off the Fingers, Thumbs, and Toes, even of old and decrepit People, where the Bones have been wholly carious, at their Articulations with the metacarpal or metatarsal Bones, and have made a perfect Cure. However incommodious this way of Amputating may seem to some, who imagine the Skin will not grow over the Cartilage without a great deal of Difficulty, if at all, yet I have never found it so. But this Inconvenience may be avoided, by not only drawing back strongly the Skin before you make the Incision, but by taking off with a Knife the Cartilage at the End of the metacarpal or metatarsal Bones; for by so doing, they will more easily unite and grow together. The Finger being cut off, the Wound must be dress'd with Lint, and bound up with Compress and Roller. If the Patient is full of Blood, let a few Ounces run from the Wound before you bind it up; for after this there will be little Danger of a fresh Hemorrhage, and indeed I never remember one to have happen'd after it. If two Joints of the same Finger are mortified with Part of the third, it will then be better to cut away with a Chisel the corrupted Part only, than by a more painful Incision to divide the Whole

Whole with a Knife from the metacarpal Bone. But if a Mortification has seiz'd the whole Finger, or Toe, it must be amputated in the Joint, leaving a sufficient Portion of the Skin.

Of the Amputation of the Hands, Arms, and Humerus.

Amongst chirurgical Operations the Amputation of the Arms and Feet appears the most cruel and terrible, and this not without Reason; notwithstanding, in some Cases, it is found necessary for the Preservation of the Patient's Life. For when a Mortification has seiz'd upon the whole Member, and destroys even the Muscles; or when both Bones and Muscles are corrupted, after a Fracture; or when an incurable Caries, or Spina Ventosa, affects the Member; or when the Brachial, or especially the large Crural Artery, is so much wounded, that the Blood cannot be stop't: In these Cases you will scarcely be able to save the Patient's Life without taking off the Limb; nor will that always do it. Lastly, it must be perform'd in Limbs, especially the Hands, when render'd monstrous, by a Spina Ventosa, or any other Cause, especially if they are very painful. *Marcus Aurelius Severinus*, in his *Treatise de Abscessibus*, *Bidloo*, in his *Exercitationes*, and *Ruyfch*, give some Cases of this Kind. In the mean time let me seriously admonish the Surgeons, never to undertake an Amputation of this Kind rashly, and without the Counsel and Assistance of other prudent Physicians and Surgeons, lest perhaps they should afterwards be accus'd of Cruelty, Rashness, or Imprudence.

But that it may appear more plain how Operations of this Sort must be perform'd, it will not be amiss to treat them in a regular Order. I will therefore begin with the Hand.

The Hand may be amputated at one Blow, as was formerly practis'd, by placing a strong and sharp Chisel near the Wrist, and with a heavy Mallet driving it through. But this way of Amputating is not only very hazardous, but also very pernicious. For there is always Danger, lest the Bones of the Wrist or Cubit, by the Violence of the Blow, should be shivered or broken, and the Patient thereby expos'd to very great Inconveniencies.

Fabricius Hildanus is of the same Opinion, and says farther, it is an Operation too violent and cruel, and consequently unbeseeming a rational Surgeon.

The modern Surgeons therefore act very reasonably in substituting the Knife and Saw in the Place of the Mallet and Chisel. But here great Care must be taken, that the Saw be not apply'd to the Carpus or Metacarpus; for should the Ligaments, and those little Bones, be lacerated and divided with the Saw, a great deal of Pain and Danger would arise. It is better therefore, according to the present Method, that the Hand be amputated with the Knife and Saw, apply'd to the Bones of the Cubit, in the manner I shall describe; and at the same time it will appear how we are to proceed in amputating the Arm, or Cubit, and the Humerus. *Heister*, however, thinks, that the Hand may be amputated at the Articulation with the Cubit, with the Knife only, tho' he has never made the Experiment.

In cutting off the Hand, or Arm, whether on account of a Mortification, incurable Caries, or any other Cause, two things seem principally necessary to be regarded. The first is the Place where the Operation must be performed, which is at least a Finger's Breadth, or two, above the dead or corrupted Part, but never upon the sphacelated or corrupted Part. Moreover an Amputation of a large Limb must not be performed in the Joint, on account of the extreme Thinness of the Flesh in those Parts, which cannot, in the Opinion of Surgeons, cover the Bones, and heal over them; from whence a Caries may arise, with many other Inconveniencies.

Notwithstanding, if a sufficient Portion of Skin on both Sides be saved, I imagine the Wound may be heal'd in the same manner as it is in a Finger cut off at the Joint.

The Place for Amputation being determin'd, that the Operation may succeed the better, it is necessary, in the next Place, that the Instruments and Apparatus, both for the Amputation, and Dressing afterwards, should be ready beforehand, and placed regularly in two Dishes, or on two proper Tables, but not in the Patient's Sight, lest he should be terrified by seeing them.

But lest any one should be unacquainted with the Instruments and Apparatus necessary in this Operation, it will be worth while to enumerate them all in this Place. We will begin with the Torcular or Ligature, with the Turn-stick, call'd by the French Tourniquet. There are various ways of making it, but this is the readiest.

Take a Fillet, about an Inch broad, and a Yard and a Quarter long; then provide a cylindrical Piece of Wood, or Stick, of about a Finger's Length; and then a Fillet roll'd up two Fingers thick, and four long; longer Cloths or Compresses must also be provided to encompass the Limb, which must be three or four Fingers broad, over which the Fillet is to be apply'd; and lastly, a Piece of Pastboard, or thick Leather, about four Fingers square.

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The Method of using the Torcular or Tourniquet is thus: Let the Fillet roll'd up be plac'd lengthways upon the large Artery of the Limb, the Situation of which is known from the Anatomy of the Part, and upon this let Compresses be plac'd transversly, so as to encompass the Limb like a Ring; then wind the long Fillet twice round these, but loosely, so that the Hand may easily pass betwixt it and the Limb, and then fasten it with a Knot; then upon the Side of the Limb, opposite to the roll'd Fillet, place the Pastboard or Leather under the long Fillet, upon which let the Fillet be twisted with the Stick, till the Circulation is wholly stop't; the Stick must be held fast, lest it should give way before the Limb is amputated, and the Profusion of Blood stopp'd, either by astringent Medicines, by Ligature, the actual Cautery, or by any other Art whatever; which being performed, the Torcular may be loos'd, and entirely remov'd. See the long Fillet, with the cylindrical Stick, *Tab. 24. Fig. 2.* and the Manner of placing it, *Tab. 24. Fig. 1. K L N.*

Mr. *Petit*, a celebrated Surgeon at *Paris*, has invented another Sort of Torcular, which is called by his Name, and is preferable to the other, as its Pressure continues without any Assistance; whereas, when the common Torcular is us'd, an Assistant is oblig'd to hold and manage it: And again, because if Necessity requires, it may remain upon the Limb, as long as may be judg'd proper, without Impediment to the Circulation of the Blood in the affected Part; whereas by the common Torcular the Blood is wholly intercepted, insomuch that in a little time it must be taken off again. These are Advantages in Hemorrhages from Wounds, or otherwise, where the Torcular is sometimes us'd; but Disadvantages in Amputations, where the Circulation ought to be stopp'd in the whole Limb for some time.

I have endeavour'd to alter and improve *Petit's* Torcular. See *Tab. 26. Fig. 6.* where A A denote the superior Part, B B the inferior, and C the Screw, all represented in their proper Size, and made of some strong and durable Wood. Towards the Extremity at D are inserted two lesser Screws, made of Iron, to which a strong filken Fillet is to be fix'd, which must be as wide as the Torcular, and twenty Inches long, that it may the better reach round the larger Members; the other End is to be fix'd to the small Hooks represented at E; in the Extremities F F, F F, both Parts, both above and below, are a little excavated, that the Fillets may rest the firmer in them, and may not be so easily mov'd, or slip quite out. At the Letter G is an iron Plate, to render the Machine stronger, lest it should give way to the Force apply'd to it. Thus when an Artery is to be compress'd, either on account of an Hemorrhage from a Wound, or to prevent one during Amputation, the inferior Part of the Torcular B B, cover'd with a good many Folds of Cloth, is laid on that Side of the Member which is opposite to the Artery; the Fillet is lightly wrapt about the Member, and the Ends of it are fixed to the Hooks E; then by means of the Screw C, the Cords are drawn to such a Degree of Tension, as is necessary for stopping the Blood, and are allowed to remain in that Degree of Tension upon the Part as long as the Surgeon shall think proper.

Garengot describ'd and delineated another Torcular of the same Nature, invented by that celebrated Surgeon *Morand*, which indeed agrees with the former in many Particulars, but differs from them principally in this, that instead of a simple Screw, *Morand*, for the sake of a quicker Action, made his with a compound one, and had it made of Iron; so that in his, one Turning of the Screw wound up the Cords more, and compress'd the Artery better, than two or more Turnings of the Screw in other Torculars. But *Garengot* makes some Objections against this Machine, and prefers that of *Petit* to it.

Some Years ago, when I was call'd to *Berlin*, to attend a certain General Officer of the *Prussian* Army, I there saw a Species of the same Torcular, made of Iron, very heavy, and much resembling that of *Morand*, but alter'd in some Particulars, by whose Directions I know not. As I have not as yet seen it delineated, I have given a Representation of it in *Plate 26. Fig. 7.* A is the inferior Plate, with many little Holes towards its Circumference, that so a small Cushion, or Foldings of Cloth, may the more conveniently be put under it, and sew'd to it. B is an excavated or hollow'd Eminence, for receiving the Screw. C is the upper Plate. D the Hollow in the upper Plate for receiving the Screw. E E the Extremities of the upper Plate, one of which is furnish'd with Hooks, the other with Hooks, and a sort of Bow, so that the Fillet design'd for embracing the Member may not slip. F is a Sort of Ring incircling the Cavity of the Screw in the upper Plate. G is a square or cubic Part, hollow'd in Form of a Screw, fitted for the Reception of the small Screw H, and contriv'd in such a manner, that the large Screw I K, which would otherwise easily yield and slip out, may be the more conveniently fixed and retained in the Cavity D. L is an iron Cylinder, firmly fixed in the inferior Plate, but free in the upper, that so the upper Plate may be made to approach the under at Pleasure,

again recede from it at Discretion, for stretching the Fillet, and compressing the Artery, and keep the upper Plate in the same Posture with the under, that so it may not be distorted or driven awry, and the Action of the Machine by that means prevented.

For preventing this Inconvenience, I took care to have a Torcular made of Copper in another manner, a Representation of which may be seen in *Plate 27. Fig. 1.* where the superior Lamina is much shorter than the inferior, and has a Fillet fix'd at one of its Extremities, which, being wrapt about the Member, is to be fasten'd to the Hooks in the other Extremity; and the Fillet passes thro' the Holes of the inferior Lamina, and by that means keeps them in a perpendicular Situation, and prevents moving any way when the Screw is turn'd. A Surgeon may make Choice of any one of these he pleases; they all answer the End, only some do the Business much sooner than others; but in this Case, the Surgeon may proceed upon that common and well-known Maxim, *Sat cito, fi sat bene*; the Operation is soon enough, if it is well enough perform'd.

The first Part then of the Apparatus for Amputation, is the Tourniquet.

The second is a smooth Fillet of Linen, near an Inch in Breadth, and about half an Ell long.

The third is a small Knife for dividing the Skin, of which see a Figure, *Tab. 34. Fig. 1.*

The fourth is a great crooked Knife for dividing the Flesh. See *Tab. 34. Fig. 2.*

The fifth is a small double-edg'd Knife, for the separating the Flesh between the Radius and Ulna, *Tab. 34. Fig. 3.*

The sixth, a linen Cloth, about three Spans long, and six Fingers broad, slit lengthways half thro'. See *Tab. 23. Fig. 17.*

The seventh, a good Saw for dividing the Bones. See *Tab. 34. Fig. 4.*

The eighth, a Pair of Forceps to lay hold of the Arteries. See *Tab. 34. Fig. 5. and 6.*

The ninth, a crooked Needle, with a strong Thread.

The tenth, vitriol Buttons, wrapt up in Lint or Cotton.

The eleventh, little four-square Compresses. *Plate 23. Fig. 21.*

The twelfth, great Plenty of Lint.

The thirteenth, a Powder for stopping the Blood; but as it often causes Inflammations, and prevents Suppuration, Spirits of Wine, or Oil of Turpentine, is better. However, we easily do without any Astringents at all.

The fourteenth, a large and round Compress of Tow, or a great Piece of the Crepitus Lupi, or Puff Ball, for covering the rest of the Cloths and Compresses.

The fifteenth, a Calf's or Hog's Bladder, or instead of it, either a large sticking Plaster, in the Shape of the *Maltese Cross*, (see *Tab. 23. Fig. 15.*) for covering the Trunk with the preceding Apparatus; or three Plaisters about two Spans long, and three Fingers broad.

The sixteenth, a Cloth in the Shape of a *Maltese Cross*, but larger than the Plaster.

The seventeenth, a thick four-square Cloth for covering the End of the Stump.

The eighteenth, three Compresses two Spans long, and two Inches wide.

The nineteenth, a Roller five Ells long, and three Fingers broad, for binding up the Limb.

Lastly, Wine, and other internal Medicines, as well as external, for raising the Spirits of the Sick, when inclin'd to faint.

It remains next, to shew the proper Situation of the Patient, the Surgeon, and his Assistants, when the Operation is to be perform'd. The Patient then must be plac'd in a low Chair, and set almost in the Middle of the Room, that free Access may be had to him all round, and that the Assistants may be plac'd more commodiously about him.

The Surgeon himself must stand in the Middle, between the Patient's Feet; but the Assistants, six of which at least ought to be present, must help the Surgeon in this Manner: One of them should stand behind the Patient, and hold his Body; another, standing at the Patient's Side, should clasp the upper Part of the Arm which is to be amputated, near the Elbow; a third should hold the Hand; a fourth should assist at the Side with the Instruments, so that when they are wanted by the Surgeon, they may be given commodiously; the fifth must deliver the Dressings in regular Order; and the sixth must be ready to give the Patient a Cordial, and to do such other things as the Surgeon may perhaps direct.

After that, the Surgeon, who ought to have a Towel before him, in order to wipe his Hands, if it should be necessary, must moderately twist the Torcular about the Arm to be amputated, in the manner, and at the Place represented, *Tab. 24. Fig. 1. K.* For by so doing, not only a too great Flux of Blood from the great Artery of the Arm is prevented, but the Nerves also being moderately compress'd, the Patient feels the

less Pain from the Operation. But lest the Torcular should give way, the Stick ought to be held carefully by the Assistant who stands behind the Patient's Back; but if the other Torculars are us'd, they stand of themselves, without any Assistance. Then the Servant, who holds the upper Part of the Arm, must draw the Skin back as much as possible, whilst the Surgeon himself binds the Fillet, about half an Ell long, and an Inch broad, several times about the Part where the Operation is to be performed, the End of which is to be sew'd fast; this is to serve him, not only as a Guide for the more regular Division of the Flesh with the Knife, but to keep the Flesh so firm, that it might not give way to the Knife. Some do the same with a leathern Thong and Buckle. But before we proceed any farther, the Patient ought to be comforted, not only with Words, but with Wine, or some other spirituous Liquor, lest he should sink under the Operation.

These things being done, the Operation must be hasten'd, in which the Surgeon's first Business is, to place the Arm in a strait Line, which being held by two Assistants, he is then to make an Incision with the lesser Knife through the Skin all round; which being perform'd, the Assistant who holds the upper Part of the Arm, must draw the divided Skin back as much as he can; then near the Edges of it, either with the same Knife, which here will do very well, or with the large crooked Knife, the whole Flesh must be divided all round the Bones. By this Method of Amputating, the Bones are much sooner and easier cover'd, and the Healing of the Wound much forwarded. This being perform'd, the Flesh between the *Ulna* and *Radius* must be divided with a small two-edg'd sharp Knife, and the *Periosteum* from the Bones must be scrap'd off, where the Saw is to be apply'd, lest being tore by the Teeth, violent Pains and Inflammation should be excited; then the Assistants holding the Arm, should strongly draw back the divided Flesh, that the Bones may appear the more fairly in View, in order to be saw'd off. And that the Flesh may the better be drawn back in the upper Part of the Wound, and the Bones cut off very high, it is convenient to apply a Cloth slit in the Middle, in such manner, that the Bones only should come through; and that the whole Parts of the Cloth resting upon the Flesh, may, by being drawn back by the Assistant who holds the upper Part of the Arm, draw back the Flesh also along with it: For in Cases of this Kind, the Bone must always be cut off as near as possible to the Flesh which is drawn back, that, as we said before, the Bones may be sooner cover'd, and the Wound much sooner heal'd. But the Surgeon ought so to apply the Saw, that both the Bones may drop together. For the Danger is, that if they should not be cut equally alike, either one or the other on which the Saw presses alone, not being strong enough, would be split, and thereby the Patient would be expos'd to many Inconveniencies in the Cure. In the Beginning, the Saw ought to be moved lightly; afterwards, when it is well fix'd in the Bones, it must be moved a little faster, but carefully. And lest it should by any Chance be stop'd in its Motion, or squeeze'd between the Bones, the Assistant holding the upper Part of the Arm should raise it a little, whilst he who holds the lower Part depresses it, so as to make way for the Saw, for about a Minute or two; in which time the Hand, and part of the Arm, will be entirely taken off.

The Hand and Arm being now amputated, the Surgeon's immediate Care must be to suppress the Hemorrhage from the divided Arteries; and after that to dress, and bind up, the remaining Stump: That the Mouths, therefore, of the Arteries may the more easily be found, let the Assistant, who holds the Torcular, loosen it gently, by untwisting the Stick a little; or if the Torcular is of the other Kind, the same is done by turning back the Screw; for the Blood bursting out, as from a Siphon, will directly shew the Mouths of the Arteries. If the Patient is full of Blood, it will be much the best to keep the Torcular loose a little, and let the Blood run gently into the Vessel underneath; but if he is very weak, and has but little Blood, the Torcular ought then to be twisted again immediately, as soon as the Orifices of the Arteries are discovered. And if the lower Arm is cut off near the Hand, it will not be very necessary to tie the Arteries there; for as the Arteries in these Parts are small, the Blood is easily stopp'd, by applying to the Apertures of the larger Bits of Vitriol, with a great deal of loose Lint, or square Compresses. *Chabert is of Opinion, that Vitriol is unnecessary; because Lint, with Compresses, and proper Bandage, will be sufficient to stop the Hemorrhage. And this, says Heister, I have found true, especially where the Patient has not been over-robust, and full of Blood. Others esteem acrid and caustic Applications very pernicious, or, at least, uncertain Remedies; because, when the Eschar made by them drops off, there is great Danger of the Hemorrhage being renew'd.* But to the Bones and Flesh, Dossils made of loose dry Lint, or Rags, are to be applied, and laid on thick: Upon the Dossils a large Piece of the *Crepitus Lupi* must be laid, either with or without a large Bolster of Tow; and the Whole must be firmly secured, either by a wet Bladder, or large Plaster, in the Form of the *Maltese Cross*, brought over the Stump. Instead of the large Plaster, two

small ones in the Form of a Cross; or three in the Form of a Star, may be applied with better Effect; with which the Skin may be drawn down, that the Wound may be the sooner cover'd by it, and healed: Upon the Plaisters a large Compress, in the Form of the *Maltese Cross*, is to be placed, in such a manner, that its extreme Parts may be held, and turned round the Arm, by an Assistant: Then a thick four-square Compress, and over it three long thin Compresses, are to be applied, in the Form of a Star, in such manner, that their extreme Parts should be brought up the Arm, and fixed there: Lastly, the Whole is to be secured by proper Bandage. See FASCIA.

It was customary amongst a great many of the antient, as well as modern Surgeons, to stop the Flux of Blood from amputated Members, by burning the Arteries with a Cautery, or hot Irons; but this Practice the Surgeons of our Age forbid, as being not only uneasy and terrible to the Patients, but at the best dubious, and often dangerous, especially in an Amputation of the Thigh or Arm. For, almost always, after the third Day, the Crust made with the hot Irons loosens, and causes a fresh Hæmorrhage: But if any one has an Inclination to use them, they may be applied in the lower Arm, or Leg, not altogether without Advantage; but it is better to follow the Method described before, and not to burn, unless in case of Necessity. But if, as modern Surgeons advise, you should be willing to tie the wounded Arteries, either in the Arm or Leg, which, nevertheless, is scarcely necessary in the lower Arm, they must be laid hold of, and held with the Crow's-bill, Forceps, (see Tab. 24. Fig. 4. and Tab. 34. Fig. 5. and 6.) or any other convenient Instrument, and tied by means of a crooked Needle, and strong waxed Thread, past round them.

When the Humerus requires to be amputated, the Operation is almost the same as in the Arm, except that the Brachial Arteries, of which there is sometimes only one, sometimes two, and sometimes three, are always to be held with a convenient Forceps, and tied, by means of a crooked Needle and strong Thread. Cauterics and Astringents are here of no Service: The extreme Parts of the great Arteries being tied, the Torcular must be loosened a little; and if any small Arteries bleed, they may be secured in the same manner. There are some Surgeons who, with a somewhat less Needle, pass the Thread through the End of the Artery itself, whilst held by the Forceps, before they tie the Knot; for by doing so, they imagine the Ligature to be the stronger, and that it will not easily give way. Others, instead of the Forceps, use a very crooked Needle, threaded with a strong waxed Thread; this they pass twice thro' the Flesh, almost round the Orifices of the Arteries, and then tying the Thread, they inclose the Arteries, together with a Portion of the Flesh, in order to secure the Stitch from breaking out. But nevertheless, if I am not deceived, it is better that the Arteries should be held by the Forceps, and afterwards tied, as is said above: For otherwise there would be some Danger, lest either the Thread should miss the Branch of the Artery, or the Artery slip from under it again.

Our Surgeons differ in their Opinions from Heister, in this respect.

The Dressing of the Stump being finished, it remains, that a little Wine, or some cordial Potion, is to be given to the Patient; who must then be laid upon the Bed, and the Stump of the amputated Arm must be placed in the Hand of an Assistant, and held some Hours. For, by this means, the Dressings and Bandage adhere more firmly, and the Hæmorrhage ceases sooner, and with more Certainty. Then the Torcular may be loosened by degrees, as much as may be thought necessary for carrying on the Circulation in the Part: And upon this, if no more Blood bursts out, it is then a Sign the Operation is well performed. The Patient therefore must be enjoined to rest, and, instead of Potions, should take sometimes a strengthening and anodyne Emulsion; by which Sleep being procured, the Pains may vanish by degrees, and his lost Strength be restored. The next Day the Torcular may be either a little more loosened, or even wholly taken away; and the strictest Regimen must be directed. And if Powders, and small temperating Potions, be ordered, and, if the Patient be very hot, he loses some Blood, these will contribute to prevent Accidents; but where there is no Heat, nor Fulness of Blood, it is unnecessary to bleed, as it weakens the Sick, who is already much reduced. But if a fresh Flux of Blood should happen, which cannot be stopp'd, either by the Application of the Hand to the Stump, or by binding a thick Cloth upon it, somewhat tighter, with a fresh Roller, which is generally sufficient, the Method is to apply the Torcular again, and having loosened the Bandage, let the Arteries be tied up afresh; or, if they cannot be laid hold of, the actual Cautery must be used; or it may be stopp'd with a large Quantity of loose Lint, the Wound being again accurately bound up, and the Stump gently compressed, till the Bleeding ceases.

But the first Bandage ought never to be taken off before the third or fourth Day, unless great Pain, Inflammation, Loss of Blood, or some such Accident, should happen, that the Orifices of the divided Arteries may be the more firmly and surely closed. Neither will it be amiss for a Servant to attend by the Patient's

Bed for eight Days, who should be very watchful, that he may apply the Torcular immediately, if the Blood should chance to burst out again; and, in the mean time, he should take care to send for the Surgeon to make a fresh Bandage. If all things proceed successfully, as often as the Wound is dress'd, every thing should be taken off separately and gently; but what is next to the Wound must not be touched, much less violently pull'd off, lest a fresh Hæmorrhage should ensue: For it is better to leave them for some time upon the Wound, and at every Dressing to soften them with warm Wine, or Spirits of Wine, till a Suppuration being made, they loosen or fall off of their own Accord; after which, it will be sufficient to dress but every other Day, or once a Day, unless the Suppuration be very great, especially in Summer-time, and then it may require twice.

At every Dressing one Caution is carefully to be observed, which is, that the Wound is, first of all, to be gently cleansed with Lint, and fresh Pledgets of Lint must then be applied, the undermost of which, or that which is next to the Wound, must have some digestive Ointment spread upon it; but 'tis proper to apply all the rest dry: Over the Dressings of Lint, three, four, or six Pieces of Plaster, about a Foot long, and an Inch broad, spread with Diapalma Plaster, that of *Andreas a Cruce*, or some other of a glutinous Consistence, are to be applied in the Form of a Star: Last of all, a thick square Compress of Linen, and three long narrow ones disposed over it, in the Form of a Star, are applied over the Plaisters. The Application of Bandage being continued in this manner for about fifteen Days, so great a Quantity of Lint, or so many Compresses, are no longer requisite, since the Danger of an Hæmorrhage is then over. The Surgeon, in the mean time, must proceed in the Cure of the Wound by a digestive Ointment, or Vulnerary Balsam, laying upon it only a small Quantity of Lint, and Plaisters, with some Compresses over all; and, last of all, dry Lint is used with a Plaster upon it; and the Wound itself is, by this means, dried and agglutinated, in the same manner as other Wounds: But this Agglutination almost always requires two Months before it is perfected. 'Tis here necessary to give Surgeons a short, but necessary Caution, which is, that they never apply the first Bandages, especially in case of an amputated Humerus or Thigh, till the Torcular is applied, in order to check the Motion of the Blood, and prevent an Hæmorrhage; or at least when the Operation is performed in the Arm, till the Artery is strongly compress'd by the Thumb of an Assistant.

When, after the Amputation, a pretty violent Motion, or Fervour of the Blood ensues, which is generally the Case with sound robust Bodies, and such as abound in Juices, 'tis necessary to let Blood very plentifully, and prescribe temperating and refrigerating Medicines; together with a very strict and exact Regimen. If this should be neglected, 'tis to be dreaded, lest a very terrible Fever, commonly called the Vulnerary Fever, or a Sphacelus, or some other Disorder of that Nature, should destroy the Patient.

AMPUTATION of the FEET and LEGS.

When the antient Surgeons intended to amputate a Foot that was corrupted in the Tarsus, or Metatarsus, that is to say, in any Part that lay below the Tibia, they used a Chisel of a large Size, and a Mallet made for the Purpose: They sometimes also made use of a Pair of very large, strong, and sharp Sheers, with which they cut off the corrupted Part; and then applying proper Bandage to the Wound, healed it with balsamic Medicines. This Operation is fully described by *Scultetus*, who had often seen it performed. But as this Method of going to work was very painful in itself, and likely to lay a Foundation for future Danger, by the Collision of the Bones, and the Laceration of the Nerves and Tendons, the more modern Surgeons, for very good Reasons, chose with a Knife to divide the Bones of the Toes from those of the Metatarsus; and, in like manner, those of the Metatarsus from those of the Tarsus; and when the Corruption happens to reach a little higher, they even venture to divide the first Bones of the Tarsus from the remaining and posterior Bones, where they are joined to each other; after which they proceed, as the Antients did, to agglutinate the Wound; for, by this means, the Patient is able to walk better upon the remaining Part of his Foot, than on a Wooden Leg or Foot. But because many have, in this Case, dreaded the Difficulty of Agglutination, or the Impossibility of again covering these Bones; or because they have, perhaps, known this Operation to be very troublesome in itself, they have therefore rather chose to cut thro' the Tibia itself, and that not towards its lower Extremity, but in its upper Part, about four Inches below the *Patella*; for tho' by this means a sound as well as a large Portion of the *Patella* is cut off, yet, by following this Method, the Deformity of the Foot, and the Difficulty of walking, are more effectually prevented; for since no one can either stand or walk well upon a long Stump, and since an artificial Foot, or other Support, cannot be commodiously fixed to it, it is much more convenient to cut the Tibia in its upper Part, and that four Inches below the *Rotula*; since if the Incision was made

made higher, its Flexor Muscles might be hurt by that means; and by this Method the Deformity of the Part is concealed, and a way paved for adapting and accommodating to the Knees artificial Legs, either of Wood or Silver. I am not ignorant, that there are, even in our own Days, some Surgeons who think with *Solingen*, *Verduin*, and *Dionis*, that the corrupted Part is only to be taken off; but I see no Reason why, in this Case, we should pay any Veneration to their Authority, or be sway'd by their Judgment; for besides that in the inferior Part of the Tibia, that is, under the Calf of the Leg, it is very difficult to fix any artificial Foot or Support; if an artificial Leg is fastened to the Knee, and the remaining Stump is bent backwards, it causes not only a great Deformity, but a considerable Inconvenience in Walking.

With respect to the Apparatus, Manner of Operation, and Bandage, nearly the same Rules must be observed, as in Amputations of the Arm. There are, however, some Cautions necessary to be regarded, which relate particularly to Amputations of the Leg. As first, the Patient may either sit in a Chair, or lie upon a Bed, or on a Table, so that the Feet may be stretched out. Secondly, the Hairs about the Part, which is to be amputated, must be shaved off, lest the Plaisters afterwards should stick to them, and cause great Pain when taken off. Thirdly, after Amputation the Arteries in the Legs are very difficultly closed, without the actual Caution, or tying their Orifices by means of a crooked Needle and Thread; for altho' they appear not very large, yet, without these Assurances, they almost always, after dressing up, bleed for some time, especially if the Crural Artery is not, at the same time, well compress'd with narrow Compresses, and the Fillet. Fourthly, before the Operation, it is necessary, that either the common Torcular with a Stick, or the new one with a Screw, should be fixed above the Knee, so that the Fillet, roll'd up in the Form of a Cylinder, may lie under the Ham, and compress the Artery there descending, as is express'd *Tab. 35. Fig. 4. D.* Tho', to me, it seems much better that the Artery should be compress'd by a Torcular, placed at the upper Part of the Thigh, especially if the Leg is to be cut off near the Knee; for so the Bandage, after Amputation, may be made more commodiously than when the Torcular is applied so near the Knee. See *Table 24. Fig. 1. L. M.*

Petr. Adrian Verduin, a celebrated Surgeon, formerly at *Amsterdam*, and my Friend when living, acquaints the World with a new Method of amputating the Legs, different from the other, in a particular Treatise wrote in *Dutch, German, French, and Latin*, tho' he was not the Inventor of it. There are many who ascribe the Glory of the Invention of this Operation to *Sabourin*, a *Geneva* Surgeon, as the History of the Royal Academy of Sciences, *Garengot*, and others. This Man is said to have performed it at *Geneva*, and after at *Paris* also, at the same time *Verduin* did it at *Amsterdam*. However, long before this time, I find this Operation was known, performed, and described by some *English* Surgeons, *Lowdham* and *Young*, as may be seen in a little Book intitled, *The triumphant Character of Turpentine; or, An account of the many admirable Virtues of Oleum Terebinthinae, particularly in Wounds and Hemorrhages, a new Way of Amputation, and speedier curing Stumps*, London, 1679. *Koernerding*, Surgeon to the great Hospital at *Amsterdam*, and my Friend also, mentions it in a Book wrote in *Low Dutch*, intitled, *A Treatise of the Gangrene and Sphacelus, and of the old and new Method of amputating the Legs*, Amsterdam, 1698. who also performed this new Operation twice, in the same Year that *Verduin* did it. The Whole of this new Method amounts to this: That the Calf of the Leg is to be divided with the Knife, represented *Tab. 34. Fig. 3.* at the Tendo Achillis, and then cut upwards again, according to the Length of it, and separated from the Bones to the Place where they are to be taken off with the Saw (see *Tab. 35. Fig. 5. 6. 7.*). Then the Flesh of the Calf hanging down, must, by an Assistant, be drawn upwards with a Cloth to the Ham, *Fig. 6. A.* Afterwards the Skin on the fore Part of the Leg, and the Flesh between the Bones, must be divided, as in the common way, with a proper Knife, as those represented *Tab. 34. Fig. 1. and 3.* and the Limb must be taken off with the Saw, as is said above. The Calf, first clean'd with a Sponge moistened with Spirits of Wine, must be brought down to the Stump, and spread over it like a Pledget; and if there should be too much, or it should be unequal, it must be cut off, and the Remainder must be secured by adhesive Plaisters, or even with a Stitch or two. Lastly, Compresses, with the wet Bladder and Bandage, must be made use of, as is before directed in general Amputations; or the Dressings may be secured by a particular Machine of Leather, described by *Verduin* and *Garengot*, with Buckles and Straps, which are to be fixed upon the Stump of the Leg; mean time, the Trunk of the Leg must be compress'd by the Hand of an Assistant some Hours, till the Danger of an Hemorrhage is over; and, at the same time, the Torcular with a Screw, represented *Tab. 26. Fig. 6.* or that delineated *Tab. 27. Fig. 1.* is to be applied for the same Purpose. From this Method the before-mentioned Authors ima-

gine many Advantages accrue to the Patient. For, first, the Flesh, by compressing the Arteries, stops the Hemorrhage without astringent Applications, the actual Caution, or tying up the Arteries: Secondly, a Caries cannot easily happen, the Bones being immediately covered again with the Flesh, but which often is the Consequence of the other Methods, and exceedingly protracts the Cure. Thirdly, by the Use of Vulnerary Balsams, in the succeeding Dressings, the Flesh and Stump will unite together, and the Cure will thereby be much accelerated. And, fourthly, the Flesh lying upon the divided Bones, like a Pillow, will be extremely commodious to the Patients in Walking, especially as there is no Necessity to bend the remaining Stump backwards, as is generally done in the common Methods: But a hollow Machine may be made of a light Wood, so that the Patient may walk, in some degree, as with a natural Leg. This Flesh, every time the Bandages are loosed, must be held and press'd close, by an Assistant, to the Bones, lest it should fall from them, and retard their Union. *Verduin* has explained all these things more fully in his Treatise above-mentioned, and has represented them in a great Number of Copper-plates.

But tho' not only *Verduin*, but other Surgeons also, have successfully performed this Operation many times, yet there are very few who approve of it, or who have endeavoured to introduce it into Practice instead of the other Methods. For, besides that neither the *English*, *Verduin*, nor *Koernerding*, ever used it afterwards, and *Sabourin's* Patient at *Paris* died, Instances are not wanting at *Amsterdam*, where, during the Cure, and even after the Part has been quite healed, some sharp Fragments of the Bones protuberated, and, by pricking the tender Parts, have caused intolerable Pain, and many other Disorders; not to mention, that *Sabourin's* Patient lost more Blood than is usual in the other way of Amputating, and other Inconveniencies which often succeed this Operation; and on which Account *Koernerding* prefer'd the old Method before it, as he declares freely in his Book. But, however this may be, 'tis certain *Garengot*, a modern *French* Surgeon, to whom the Writings of *Young* and *Koernerding* seem to be unknown, praises this Operation, and makes no Question but to bring it into Practice again. For there have been Men in *France*, as he reports, who have been so well cured by this Method, as not only to walk commodiously, but also to dance very readily; but if we would hope for such good Success, the Patient must be healthful, and the Causes, which require the Amputation, external.

Lastly, it is to be remarked, that this Operation is not confined wholly to the Leg, as many imagine, but it also may be performed in the Arm, by leaving Part of the Flesh and Skin for covering the Bones after the Limb is taken off, and which may be done with Success; as may be seen not only in *Young's* and *Koernerding's* Treatises, but also in *Ruyssch's Epist. Problem. 14. de nova Artuum decurtandorum Methodo*; where he accurately describes an Operation of this Sort, performed by *Verduin* and *Bortell*, the Son-in-law of *Verduin*, himself and others being present.

AMPUTATION of the FEMUR.

Whenever the Leg is corrupted as far as the Knee, or Thigh, or the inferior Part of the Thigh itself is affected with a Caries, Sphacelus, or incurable Fracture, or the Crural Artery is much injured, the Thigh itself must generally be amputated. The Danger and Hazard attending this Operation can scarcely be express'd, especially when it is performed in the superior Part of the Femur: For, besides that a violent Hemorrhage is sometimes caused by a Division of the great Arteries, the Strength of the Patient is so perpetually wasted by the constant Discharge of too great a Quantity of Matter, from so large a Wound, that the Patient frequently sinks under the Cure. Therefore, whenever the Thigh is to be cut off, the Surgeons ought, by all means, to take care, that it is done, if possible, in the smallest Part, about three Fingers Breadth from the Knee, and that as much of the Flesh and Skin is saved as possible; for by so doing, this violent Operation will be supported the better, and the Cure will be completed with more Ease and Safety.

The Fillet roll'd up in Form of a Cylinder must, by means either of the common Torcular, or one of those with a Screw, compress the Crural Artery, by being placed upon the highest and inward Part of the Thigh, that is, where the Head of the Vallus Internus Muscle, and the Triceps, meet; see *Tab. 24. Fig. 1. L. M.* for there is the greatest Danger otherwise, lest, as it often happened before the Torcular was invented, a very large Hemorrhage, from that great Artery, should suddenly destroy the Patient, even during the Operation.

With respect to the Amputation of the Thigh, very little is to be said here, the same Method being to be observed as in cutting off the Arms or Legs. But this, however, must be particularly taken Notice of, that, in the first Place, the Hairs are to be shaved off the Part; secondly, that as soon as the Skin, with the Fat, is divided all round with the lesser Knife, *Tab. 34. Fig. 1.* they are to be drawn upwards as much as is possible, before the Muscles, or Flesh, are divided. Afterwards these Muscles,

Muscles, near the upper Edges of the divided Skin, a little higher than the first Incision, must be cut through all round to the Bone, either with the same smaller Knife, or that represented *Tab. 43. Fig. 7.* or with the large crooked Knife, *Tab. 34. Fig. 2.* By this means, as was before observed, after the Bone is saw'd off, the Trunk of the Bone will be the sooner covered with the Flesh, and Integuments that are left, a Caries will be prevented, and the Cure of the Wound much accelerated. But if this Method is not carefully observed, but the Muscles are divided, together with the Skin at the same time, as is sometimes done, these strong Muscles, being cut through, contract so much upwards, as I have often seen, that the Thigh Bone, after the second or third Dressing, has stood out beyond the Flesh two or three Fingers Breadth, like a Stick: In which Case a long time is required for the Flesh to grow, and extend itself, so as to cover the Stump, which alone is sufficient to debilitate the Patient, and give him much Uneasiness. Add to this, that the Wound cannot be expected to heal before the Trunk of the Bone is covered.

Then, as to an Hemorrhage, because of the remarkable Largeness of the Artery, it can scarcely be stopp'd otherwise than by Ligature, which is therefore ordered here to be done with the greatest Care, the Artery being first taken hold of by the Forceps, or Tenacula, *Tab. 34. Fig. 5.* or 6. and tied well with a strong Thread pass'd round it. If more Arteries bleed, if they are large, they must be tied, but if small, there is no Occasion, as Dossils of Lint, or a Bit of Vitriol, very often do the Business. The Bandage is the same as we mentioned above in an Amputation of the Arm; only there should be greater Plenty of Lint and Puff-ball, a larger Bladder, and also larger Compresses and Plaisters; and lastly, longer and broader Rollers are here necessary, and the Crural Artery must be compress'd the whole Length of the Thigh, with a narrow and thick Bolster, and a particular Roller, or the Torcular itself, *Tab. 26. Fig. 6.* or *Tab. 27. Fig. 1.* is to be kept on for some time. Then, the Patient being put to Bed, it is proper to place a Pillow under the Thigh, by which it may be well elevated, that the Force of the Blood, against the Mouths of the Arteries, in the elevated Limb, may be more gentle; for this contributes much to the preventing an Hemorrhage. Then the Stump must be compress'd for a considerable time, with the Hand of an Assistant, and every thing else must be done as is directed in the Cure of an amputated Humerus.

But if any Part of the Foot, or Arm, should be taken off by a Bullet, or Cannon Ball, or should be torn off, or broke to-pieces by a Wheel, or any such Machine, the Surgeon must consider, that the first thing to be done is to apply the Torcular immediately, to check the Hemorrhage. Secondly, that the Parts of the Bones standing out of the Flesh, if there are any, be taken off, either with a sharp Pair of Pincers, or a Saw, so that the End of the Bone may be rendered even and smooth, and that no pointed Fragments may appear above the Flesh; but if the Bones do not protuberate, then nothing is to be taken away. And, thirdly, that the wounded Arteries be either compress'd with thick Dossils of Lint, or small Compresses, or be tied up; or even, in Cases of Exigency, as the Nature and Situation of the Wound, or other Circumstances, seem to require, with the actual Cautery, and afterwards carefully bound up. And, as to the rest, he must proceed in the Manner laid down before in other Amputations of the Limbs.

But tho' *Botallus*, a celebrated *French* Physician, formerly invented a new, and, in Appearance, wonderful and expeditious Method of amputating the Limbs, by a Machine, furnished with a very large and sharp Iron Instrument, which being very heavy, and falling suddenly from a considerable Height upon the Place where the Limb was to be amputated, cut it off without either Knives or Saw, most expeditiously, and at one Stroke; and tho' *Hildanus* has also imitated this Method of Amputating, nevertheless the more prudent Surgeons, and that not without Reason, have abandoned this Contrivance; for it is greatly to be feared, that, left from the excessive Violence of the Blow, the Bones themselves should be splintered, and very much shattered. See above.

After the Stump is perfectly healed, it may not be amiss to make an artificial Leg, either of Silver for Gentlemen; or, for the poorer Sort, of Wood; which, being properly fixed to the Part, either with Buckles and Straps, or even by Springs, the Deformity may be concealed, and the natural Use of the Limb, in some measure, restored. Not only *Paré*, *Hildanus*, and *Solingen*, but some modern Mechanics, have curiously shewn, in what manner it should be made; but if Circumstances are very narrow, then only the common wooden Leg, hollowed in its upper Part, so as to fit the Knee, may be bound on, so that the Patient may walk with it tolerably well.

Lastly, if the Ends of the Bones should prove carious, as is very often the Case, whatever Care the Surgeon may take to prevent it, it is certainly necessary (altho' many Surgeons are silent upon this Subject, because it impedes the Cure) to dress the Caries with Powder of Euphorbium, or to touch them with the actual Cautery; or, which appears to me better, the rotten

Part may be scraped off with the Rugine; for, by so doing, in a little time the Flesh will unite with the scraped Bone, and the Wound will be healed, which could not be done whilst the Caries continued.

AMPUTATION of the whole ARM, at the Joint of the HUMERUS.

I myself have never performed an Amputation in the Joint of the Humerus, nor have read of its being done by any other Surgeons, except *Le Dran*, and *Garengeot*, after his Example, tho' he does not name him; nevertheless, it will not be improper to shew briefly here, what they have specified concerning it.

There are two Cases, in which they tell us this painful Operation ought to be performed. The first is, if the upper Part of the Arm is broke to-pieces by a Bomb-shell, Hand-granado, or by any other Violence is excessively bruised and shattered. The other Case is, if the Head of the Humerus, by any internal Disorder, suppose either by a Tumour, a Spina Ventosa, a Caries, or even an Abscess, is found to be rotten; to which perhaps may be added, a Sphacelus of the Arm, which extends itself to the Joint.

But before so dangerous and difficult an Operation is attempted, the several things are to be provided, which may seem necessary to the Accomplishment of it. First, the Patient is to be placed in a convenient Chair, with his Face covered: But in this Operation the Torcular must not be applied, as in other Amputations, because it cannot be well fixed; but the Brachial Artery must be tied, as soon as the Flesh is divided, which, they inform us, is to be done in the following manner:

As soon as the Patient is properly seated, the affected Arm must be extended, and held strongly by an Assistant, and the true Situation of the Brachial Artery must be traced from the Axilla; in doing which, Anatomy will greatly assist the Surgeon: But if, from the Largeness of the Tumour, it cannot be found, it is necessary to make an Incision through the Flesh, on both Sides of the Arm, lengthways, so that the Bone may be touch'd by the Surgeon's Fingers, that from hence he may judge of the Situation of the Artery. The Brachial Artery being thus found out, a Needle, threaded with strong Thread, six or eight times doubled, and waxed, must be pass'd through the Flesh, about two Fingers below the Armpit, near the Os Humeri, between the Bone and the Artery, taking care the Artery is not wounded by the Needle in its Passage, holding down the Arm, that the Skin may be the more lax; the Thread then, being brought round, must be secured by a firm Knot. This being done, it is to be considered, whether the Pulse of the Artery, in the neighbouring Part of the Arm, is ceased or not: For if it is not perceived, it is a Sign the Artery is sufficiently compress'd by the Ligature; but if any Pulsation of the Blood remains, the Thread must be drawn tighter, till the Pulsation entirely ceases: And then a second or third Knot, with Bows, must be made, lest the Ligature should be too easily relaxed. For this Purpose, *Le Dran* proposes a strait Needle; but *Garengeot* recommends one that is crooked, such as is represented *Tab. 35. Fig. 10.*

With respect to this Operation, three Cautions are principally necessary. For, after the Artery is tied in the manner before-mentioned, and secured from an Hemorrhage, great Care must be taken, first, that sufficient Skin and Flesh is left at the Shoulder; secondly, that the Flesh is properly cut thro'; and lastly, that the Ligament itself, in the Joint of the corrupted Bone, is divided; then let the Bone be loos'd from the Sinus of the Scapula, and at last entirely removed. But that these things may be happily accomplished, it ought to be the Surgeon's Care to find out, carefully, the true Situation of the Acromion; then that the Skin should be drawn back sufficiently; and lastly, that the Knife, for dividing the Flesh, be introduced two or three Fingers Breadth under the Acromion; for by so doing, a great Part of the Deltoid Muscle is saved, by the Assistance of which, not only the hollow Sinus of the Humerus may be filled up, but the healing of the Wound may be surprisingly hastened.

These things being well considered, the Skin, with the Fat and Deltoid Muscle, must, in the Place specified above, be cut through with a sharp Knife, such as that represented *Tab. 34. Fig. 1.* or *Tab. 33. Fig. 14.* Afterwards the Arm must be gently raised, that the Heads of the Biceps Muscle may be the more easily found and divided. If, by Accident, a Flux of Blood from the lesser Arteries and Veins should perplex the Operation, an Assistant must apply either his bare Finger, or Dossils of Lint, or hard and small Compresses, to the Mouths of the bleeding Vessels; but if the Flux be from a large Artery, it must be tied by means of a small Needle and Thread: Then the Ligament, first in the superior Part of the Joint, and afterwards on both Sides, must carefully be divided, and the Head of the Bone of the Arm must be taken away, with the Left Hand; then all the other Parts which surround the Head of the Arm on every Side, must be loosened and divided, but with the greatest Caution, lest the Brachial Artery itself should

be cut. In this way of Operating, it may be readily perceived, whether the Arteries are exactly enough secured. We must also take great Care afterwards, that the Skin and Muscles which are tied together with the Artery, are not rashly divided: Therefore the Skin must be so divided from the Bone, that an almost triangular Piece may remain near the Armpit, the broadest Part of it next the Armpit, the lower or outward Part somewhat narrower, and accommodated to the Shape of the Deltoid Muscle; and thus the whole Limb is, at last, entirely taken off.

The Arm being amputated, as above-mentioned, it remains, that the Artery tied with the Flesh should be found, and another Ligature made above the former, by passing a Thread, by the Help of a smaller Needle, *Tab. 27. Fig. 5.* betwixt the Skin and the Artery, which must be tied very securely: Then the other Ligature, which bound the Skin also, must be cut, lest a painful and dangerous Inflammation should be excited.

The Manner of binding up the Wound, after the Operation, is thus directed: Immediately a Pledget of Lint must be applied to the Trunk, and a small Compress upon the Arteries, to secure the Ligature. *It is, however, Heister's Opinion, that it would be a better way to apply the Flesh immediately to the Sinus of the Scapula, and upon that the Pledgets and Compresses; for he thinks, by this means, the Flesh would sooner unite with the Bone, than if they were at first separated by the Interposition of the Lint and Pledgets.* Then the lower Part of the Skin must be drawn upwards, and the upper Part, together with the Deltoid Muscle, drawn downwards; and a great Quantity of dry Lint must be laid upon them, which must be secured upon the Parts by a Plaster, in the Shape of the *Maltese Cross*. Over the Plaster a thick and large four-square Compress must be applied, and a round Bolster to the Armpit, by which the Pulsation of the Arteries will be the better secured from breaking the Ligature. All these must be covered with a double Compress in the Shape of the *Maltese Cross*, and in such a manner, that two or three more Compresses, of about two Thirds of an Ell long, and four Fingers broad, may be laid upon it. These two Compresses are to be placed thus: The first must be applied obliquely upon the Trunk, so that the anterior Part of it may rest upon the sound Shoulder, and the posterior Part about five Fingers below the sound Armpit: The second should be placed upon the Trunk, cross-ways, over the first; and the third, broader than the other, must be applied over them both, so as to cover them, and be pass'd cross-ways upon the sound Shoulder; then with the Bandage, which the Surgeons call *Spica descendens*, (see *FASCIA*) the Whole must be firmly secured, placing first a thick Compress or Bolster under the sound Armpit, lest the Veins there should be too much press'd, and that the Roller may the more conveniently be pass'd round.

This Operation *Le Dran* the younger, and *Garengeot*, report was performed with good Success upon a French Nobleman, in the Presence of, and with the Consent of *Marschall, Arnold, Lapeyron, Petit, Merry*, and other noted Surgeons at *Paris*, on account of a Caries, or rather a Spina Ventosa, in the upper Part of the Arm. But *Garengeot*, in his second Edition of *Chirurgical Operations*, adds, that the same Nobleman died of a Plethora, six Months after the Cure was completed. He also orders this Operation to be performed, in an Abscess, near the Joint of the upper Arm; but whether a simple Abscess can call for so dangerous and difficult an Operation, I leave to the Judgment of more prudent Surgeons.

The Opinion of our own Surgeons, relative to Amputations, is much to be regarded; and this we may learn from the Practice of the Hospitals, which (according to Mr. *Sharp*) is as follows:

A spreading Mortification has been always looked upon as so principal a Cause for Amputation, that it is a Fashion with all Writers to treat of a Gangrene, previous to the Description of this Operation; and, I think, they have all agreed, that whatever the Species of it be, if the Remedies they prescribe do not prevent its Progress, the Limb must be amputated: However, this Operation is spoken of as frequently unsuccessful; and, in Length of Time, its want of Success has been so unquestionably confirmed, by repeated Experiments, that some of the most eminent Practitioners here in *England*, make that very Distemper an Exception to the Operation, which so few Years since was the great Inducement; and the Maxim now is, never to extirpate till the Mortification is absolutely stopp'd, and even advanced in its Separation.

Gangrenes may be produced two Ways, either by Indisposition of Body, or by Accident in a healthful State; for, as the Life of a Part depends upon the Circulation of its Fluids, whatever shall make the Circulation cease, will inevitably occasion a Gangrene: Thus a mere Compress, preventing the Course of the Blood, as effectually causes a Mortification, as any Indisposition in the Fluids or Vessels.

It frequently happens in old Age, that the Arteries of the lower Extremities ossify, which destroying their Elasticity, must, in Consequence, produce a Gangrene in the Toes first, and afterwards in the Limb, nearly as high as where the Ossifi-

cation terminates; so that, in Mortifications arising from this Cause, we at once see why Amputation, during their Increase, is of so little Service, unless performed above the Ossification; but we have no way to judge where the Ossification ends, but by the Inference we make from the Gangrene's stopping: Hence we may learn the Propriety of our modern Practice in this Case.

If, by any Accident, the Limb has been injured to that violent Degree as to begin a Mortification, it will be no more fit to operate here, till it stops, than in the other Instance; because all Parts that are mortified, have had the Disposition to become so, before the Effect is produced; and cutting off a Limb half an Inch above the absolute dead Skin, is generally leaving a Part behind, with the Seeds of a Mortification in it; so, unless we can be sure the Vessels are not affected in the Place of Amputation, which will be hard to know but from the Consequence, the Operation will be useless.

Sometimes the Fluids of the Body are so vitiated, as to lose their proper nutritious Qualities, and the Limb becomes gangrened, not from any Alteration in its Vessels, but chiefly from its Situation; which being at a great Distance from the Heart, will be more subject to feel the ill Effects of a bad Blood, than any other Part, as the Circulation is more languid in the Extremities. When therefore a Gangrene, arising from this Cause, is running on, Amputation above it will, for the most part, be useless; since it is only removing one of the Effects of the bad Juices, and leaving them in the same State, to produce the like Mischief in other Parts: Thus we see, after Amputations on this Account, the Gangrene sometimes falls on the Bowels, or the other Extremities; from which Observation, I think, we may conclude it not safe to amputate, till the Fluids are altered, and this Alteration will presently discover itself by the stopping of the Mortification.

I have laid it down as a Rule, that the Mortification should not only be stopp'd, but advanced in its Separation; the Reason of which is, that tho' the Blood is so much altered for the better, as to occasion a Stoppage of the Gangrene, yet at this Point of Alteration 'tis still in a bad State, and should be left to mend, with the utmost Tranquillity of Body, and Assistance of cordial Medicines, till such time as Granulations of Flesh, upon the living Part of the Extremity, shew the balsamic Disposition of the Blood: In the mean while, to take off the Stench of the Gangrene, it may be wrapt up in spirituous or odoriferous Applications. I have seen some Limbs taken off immediately upon the Mortification's ceasing, when afterwards the Patients have sunk, from frequent Effusions of Blood, not discharged by the great Vessels, but the whole Stump. These Hemorrhages, I conceive, were owing to the Thinness of the Blood, which hardly gave a reddish Tincture to the Cloaths and Bandages; on the other hand, upon waiting a considerable time after the ceasing of the Mortification, I have taken off some myself with as good Success as for any other Disorder.

Gun-shot Wounds, compound Fractures, and all sudden Accidents requiring Amputation, are attended with the best Success, if immediately performed. Disorders of the Joints, Ulcers of long standing, and all scrophulous Tumours, do sometimes return on other Parts, after the Operation. When a Leg is to be amputated, the Manner of doing it is this:

Lay your Patient on a Table, three Foot four Inches high, which is much better than a low Seat, both for securing him steady, and giving yourself the Advantage of operating without stopping, which is not only painful, but inconvenient, in the other Situation. While one of the Assistants holds the Leg, you must roll a Slip of fine Rag, half an Inch broad, three or four times round it, about four or five Inches below the inferior Extremity of the Patella: This being pinn'd on, is to serve as a Guide for the Knife, which without it, perhaps, would not be directed so dexterously: The Manner of rolling has always been perpendicular to the Length of the Leg; but having observed, that tho' the Amputation at first be even, yet afterwards the Gastrocnemius Muscle, contracting, draws back the inferior Part of the Stump more strongly than the other Muscles can do the rest of it; I have lately, in order to preserve the Regularity of the Cicatrix, allowed for this Excess of Contraction, and made the circular Incision in such a manner, that the Part of the Wound which is on the Calf of the Leg, is farther from the Ham, than that on the Shin is from the middle of the Patella.

In the mean time, one of your Assistants must carry a strong Ligature round the Thigh about three or four Inches above the Patella, which passing through a couple of Slits in a square Piece of Leather, he must twist with a Tourniquet till the Artery is sufficiently compress'd, to prevent any great Effusion of Blood; and to do it more effectually, he may lay a Bolster of Tow or Linen under the Ligature, upon that Part where the Artery creeps.

The Course of the Blood being stopp'd, you must begin your Incision just below the Linen Roller, on the under Part of the Limb, bringing your Knife towards you, which at one Sweep may cut more than the Semi-circle; then beginning your second

Wound

Wound on the upper Part, it must be continued from the one Extremity to the other of the first Wound, making them but one Line. The Incisions must be made quite through the Membrana Adiposa, as far as the Muscles; then taking off the Linen Roller, and an Assistant drawing back the Skin as far as it will go, you make your Wound from the Edges of it when drawn back, through the Flesh to the Bone, in the same manner as you did through the Skin. Before you saw the Bones, you must cut the Ligament between them with the Point of your Knife; and the Assistant, who holds the Leg while it is sawing, must observe not to lift it upwards, which would clog the Instrument.

In amputating below the Knee, it is of Advantage to stand on the Inside of the Leg, because the Tibia and Fibula lie in a Position to be saw'd at the same time, if the Instrument be apply'd externally: Whereas, if we lay it on the Inside of the Leg, the Tibia will be divided first, and the Fibula afterwards; which not only lengthens the Operation, but is also apt to splinter the Fibula, when it is almost saw'd through, unless the Assistant be very careful in supporting it.

When the Leg is taken off, the next regard is to be had to the stopping the Blood, which must be effectually done before the Patient is put to Bed, or there will be great Danger of Bleeding again, when the Fever is excited, and the Vessels of the Stump dilated, both which happen a very little while after the Operation. There is no Method for this Purpose so secure, as tying the Extremities of the Vessels with a Ligature, which with a crooked Needle pass'd twice through the Flesh, almost round them, will, when the Knot is made, necessarily inclose them in the Stricture; and to discover the Orifice of a Vessel, your Assistant must every time loosen the Tourniquet: This is a much better way than using the Artery Forceps, where the Vessels are apt to slip away out of the Ligature; and as to styptic Applications, their want of Safety is so well known now, that the Use of them in Hemorrhages from large Vessels, is almost universally rejected.

It sometimes happens in a large Stump, that ten or more Vessels require tying; which done, you must apply loose dry Lint to the Wound, or in case the small Vessels bleed plentifully, you may throw a Handful of Flower amongst the Lint, which will contribute to the more effectual stopping up their Orifices. Before you lay on the Pledget, you must bind the Stump, and begin to roll from the lower Part of the Thigh down to the Extremity of the Stump. The Use of this Roller is to keep the Skin forwards, which, notwithstanding the Steps already taken, to prevent its falling back, would in some measure do so, unless sustained in this manner. The Dressings may be secured by the cross Cloth, and gentle Bandage; and the Method of treating the Wound may be learn'd from what has been said, with respect to recent incised Wounds.

Before the Invention of making the double Incision I have just now described, the Cure of a Stump was always a Work of Length of Time; for by cutting down to the Bone at once, and sawing it directly, the Consequence was, that the Skin and Flesh withdrew themselves, and left it protruding out of the Wound two or three Inches in some Cases; so that it rarely happened, that an Exfoliation did not follow; which, besides being tedious, also frequently reduced the Wound to an habitual Ulcer, and at best left a pointed Stump, with a Cicatrix ready to fly open upon the least Accident; all which Inconveniencies are avoided by this new Method, and I know not of any Objection to it, unless that the Pain of making the Wound is supposed to be twice as much as in the other, because of the double Incision; but when we consider, that we only cut the Skin once, and the Flesh once, tho' not in the same Moment, I fancy, upon Reflection, the Difference of Pain will be thought inconsiderable.

In amputating the Thigh, the first Incision is to be made a little more than two Inches above the Middle of the Patella; after the Operation, a Roller should be carried round the Body, and down the Thigh, to support the Skin and Flesh. This is also the most proper Bandage, as Abscesses will sometimes form in the upper Part of the Thigh, which cannot discharge themselves so conveniently with any other, it being almost impracticable to roll about the Abscess, unless we begin from the Body.

The Amputation of the Arm and Cubit differs so little from the foregoing Operations, that it will be but a Repetition to describe it. However, it must be laid down as a Rule, to preserve as much of the Limb as possible, and in all Amputations of the upper Limbs, to place your Patient in a Chair.

There are, in Armies, a great many Instances of Gun-shot Wounds of the Arm, near the Scapula, which require Amputation at the Shoulder; but the Apprehension of losing their Patients on the Spot by the Hemorrhage, has deterred Surgeons from undertaking it. I have heard of its having been done once, but though it had never been perform'd, we might learn it is practicable from the Case of a poor Miller, whose Arm and Scapula were both torn from his Arm by a Rope which was accidentally twisted round his Wrist, and suddenly drawn up by the Mill. Almost every one in London knows the Story, and

that he recovered in a few Weeks: It is very remarkable in this Accident, that after fainting, the Hemorrhage stopp'd of itself, and never bled afresh, tho' nothing but Lint and Turpentine were laid on the great Vessels. In case therefore of a Wound or Fracture near the Joint, or incurable Fistulas in the Joint, not attended with much Caries, I think the Operation may be perform'd safely in this manner:

The Patient's Arm being held horizontal, make an Incision through the Membrana Adiposa, from the upper Part of the Shoulder, across the Pectoral Muscle, down to the Armpit, then turning the Knife with its Edge upwards, divide that Muscle, and Part of the Deltoid; all which may be done without Danger of wounding the great Vessels, which will become exposed by these Openings; if they be not, cut still more of the Deltoid Muscle, and carry the Arm backward; then with a strong Ligature, having tied the Artery and Vein, pursue the circular Incision through the Joint, and carefully divide the Vessels at a considerable Distance below the Ligature; the other small Vessels are to be stopp'd as in other Cases.

In doing this Operation, regard should be had to the saving as much Skin as possible, and to the Situation of the Processus Acromion, which projecting considerably beyond the Joint, an unwary Operator would be apt to cut upon.

The Amputation of the Fingers and Toes is better performed in their Articulation, than by any of the other Methods: For this Purpose, a straight Knife must be used, and the Incision of the Skin be made not exactly upon the Joint, but a little towards the Extremity of the Fingers, that more of it may be preserv'd for the easier healing afterwards: It will also facilitate the Separation in the Joint, when you cut the Finger from the Metacarpal Bone, to make two small longitudinal Incisions on each Side of it first. In these Amputations, there is generally a Vessel or two that require tying, and which often prove troublesome when the Ligature is omitted.

It may happen, that the Bones of the Toes, and Part only of the Metatarsal Bones, are carious, in which Case the Leg need not be cut off, but only so much of the Feet as is disordered; a small Spring-saw is better to divide with here than a large one. When this Operation is performed, the Heel and Remainder of the Foot will be of great Service, and the Wound heal up safely, as I have once found by Experience. *Sharp.*

AMPUTATION of the BREAST.

The Extirpation of a Cancer is an Operation of such Importance, that it cannot be performed with too much Caution: Before 'tis therefore attempted, the Surgeon ought carefully to examine, whether the neighbouring Glands under the Armpit, are already indurated; and whether the Cancer is entirely adherent to these indurated Glands. If it is, the Cure, for the most part, does not succeed so happily as could be wish'd, because the cancerous Disposition, or the Poison of the Disease, seems now to be lodged in other Parts, besides the Breast; and for this Reason, when the Breast is taken off, the Disorder uses in a little time to shew itself afresh. There are, in the mean time, some few Instances, where the Patients have been recovered by extirpating the Cancer, together with the indurated Glands under the Armpit; but when the Surgeon inclines to undertake the Extirpation of this Sort of Cancer, the Patient must be duly and skilfully prepared for the Operation by proper Management, and a due Regimen. After this Course of Preparation is at an End, if the Cancer is as yet moveable, and not immoderately large, but only possessing a Part of the Breast, [*vid. Tab. 43. Fig. 1. A. B.*] the Patient must be placed upon a pretty high Chair adapted to that Purpose, and the Arm next to the affected Breast, must be either well extended, or even held backwards and downwards, or tied in a proper manner to the Chair; for by these means the Pectoral Muscle is strongly expanded, and the corrupted Part of the Breast may, by means of that very Expansion, be more easily and more thoroughly loosened from it. 'Then 'tis customary with many, in the very Middle of the Tumour, to make pretty long crucial Incisions into the Skin and Fat, which cover the Cancer; which having done, they with an Incision-knife separate the Lips of the Incisions, and so proceed to the Separation and Extirpation of the Cancer itself. To do which with the greater Accuracy and Dexterity, some use to raise and free the corrupted Part with a flaxen Chord passed thro' it, by means of the large Needle delineated in *Tab. 27. Fig. 5 or 6.* or with such a Hook as may be seen in *Tab. 29. Fig. 2 or 3.* But I have several times happily cur'd Cancers of this Kind, which were larger than the Fist, and reached from the very Nipple to the Humerus, as may be seen in *Tab. 43. Fig. 3. A. B.* and yet made only one Incision, and with the Help of no other Instrument than an Incision-knife, delineated in *Tab. 33. Fig. 14.* separated it entirely from the sound Parts, and agglutinated the Wound, of which there is a Representation in *Tab. 43. Fig. 2.* But where the Skin itself is corrupted, or closely adherent to the Cancer, a Cure can scarce be expected in any other way, than by cutting out the Cancer, and

and together with it the Skin, which, for the most part, may be very soon done by a skilful Surgeon; and I myself have performed Cures of this Kind, without leaving any considerable Cicatrix.

After the Extirpation, unless the Patient is already too much weakened, it is very proper to take as much Blood from her, as her Strength and Condition will allow; for by this means an Inflammation, a Fever, and a fresh Effusion of Blood, may most probably be prevented. Nor indeed is there in this Case any great Necessity for a hot Iron to stop the Hemorrhage, as the Antients imagined; for proper Bandage will sufficiently answer the Intention, by the Application of a good deal of fine Lint, some Folds of thick Linen Cloth considerably broader above it, and a Roller of a sufficient Length above all. And indeed *Bidloo*, once my Master, and a Man very much conversant in Operations of this Kind, affirms, that the Blood, in Cases of this Nature, may most advantageously be stopp'd, by a Mixture of Plaster of *Paris* (Gypsum) with the Lint [*Exercitat. Anat. Chirurg. p. 157.*]. Some again apply various Styptic Powders, and others tie up the larger Arteries. But *Garengot*, agreeably to that Method of Cure proposed by Mr. *Petit*, a famous Surgeon in *Paris*, maintains not only that the Blood will soon stop, but that the Incision will soon heal, and the Cancer return no more, if without the Use of any Lint and Styptic Medicines, the Lips of the Wound be carefully and speedily brought into Contact by means of Suture. I myself made a Trial of this Kind of Cure; but tho', upon cutting out the Cancer, there was a very small Effusion of Blood, and the Patient was soon recovered; yet her Disorder soon return'd, and she herself at last died of a Cancer, formed a second time after the Extirpation of the first, even though the Wound was perfectly agglutinated: I therefore think it incumbent on me, in Wounds of this Kind, where a vehement Effusion of Blood happens by the Extirpation of a Cancer of the Breast, and where it is to be fear'd, that it cannot be stopp'd by Lint alone; I lay, in this Case, I think it incumbent on me to use either the best rectify'd Spirit of Wine, or some Powder fit for stopping Hemorrhages, made of Bole, Dragons-blood, Colophony, and Mastich, together with Lint, and the Crepus Lupi. When the Patient is weak, but little or no Blood should be designedly allow'd to flow from the Wound; but we ought, immediately after the Extirpation, to proceed to Bandage. But in changing or renewing our Bandages, we are to proceed according to the general Rules for dressing Wounds. See VULNUS.

I have learn'd from Experience, that it was no bad Method proposed by *Helvetius* [*Traité des Pertes de Sang*] to lay some broad thick Compresses of Linen Cloath, well soaked in warm Ale and Butter, over the first Dressings, in order to prevent Inflammation; but yet Matters proceeded well enough, when I apply'd all my Compresses dry.

But if a Cancer or Scirrhus possesses the whole Breast, in this Case, whether the Cancer should happen to be broke, or as yet remains covered, the whole Breast is to be cut off. Of this Kind was that large Cancer, which in the Year 1720. I myself very successfully extirpated, and described in a Treatise by itself; nor had it, as appears from *Tab. 43. Fig. 3. A. B.* only possessed the Whole of the Breast, but it was at the same time so large, that it weighed above twelve Pounds. In this Case likewise, we are carefully to examine, as I before cautioned, whether the Cancer is adherent to the Glands below the Armpit, or the Pectoral Muscle, because in both these Cases, most Authors maintain, that the Operation is performed to no manner of Purpose. But, not to repeat what I have already said of these Glands, *Bidloo*, as he himself affirms, [*Exercitat. Anat. Chirurg. p. 168.*] more than once, successfully treated Cancers of this Kind, where, at the same time, a corrupted Part of the Pectoral Muscle was to be cut off. The same Author also affirms, that the Case is not always desperate, even when a certain Degree of Caries has seiz'd the Ribs; and, that he himself has sometimes known such a Caries carried off by scraping, or even by the yellow Ointment of *Hurtzhus*. But when the Cancer neither adheres to the Glands nor Muscles, the Hopes of a happy Cure are far better founded.

Having thus shewn in what particular Cases the whole Breast, in which a Cancer is lodged, is to be cut off, it now remains, that we point out the particular Method in which this Operation is to be performed. But since different Surgeons have gone to work in different Manners, it will not be amiss here to enumerate some of the principal Methods: First then, let the Patient be placed on a Chair, in the manner described above; then, according to the Directions of *Scultetus*, a large Needle, represented in *Tab. 39. Fig. 12.* with a large Thread or Chord in its Eye, is to be pass'd thro' the lower Part of the Breast. Then the Extremities of this Thread or Chord are to be brought together in such a manner, as to be a kind of Handle for raising the corrupted Breast. Sometimes, when one of these Threads or Chords does not seem sufficient for the Purpose, two of them are pass'd through the Breast in a crucial

Direction, as may be seen in *Tab. 43. Fig. 4* and *5*. After this, the whole corrupted Part is to be carefully cut out, not by passing the Knife downwards, as *Scultetus* in his thirty-sixth Plate directs, but upwards, as is represented in *Tab. 43. Fig. 5*. left perhaps an Effusion of Blood should either put an entire Stop to the Surgeon's Proceeding, or at least prevent his performing the Operation with that Accuracy he could wish. If the Breast is large, a proportionably large Incision-knife is to be used, that so the Operation may be the sooner performed. In a small Breast, on the other hand, a small Knife is sufficient. Another Method of performing this Operation was principally used by *Solingen* and *Bidloo*, and it only differs from the former in this; that instead of Threads or Chords, a kind of Fork, delineated *Tab. 43. Fig. 6.* is used. This Fork is pass'd in such a manner through the corrupted Breast, beginning at its lower Parts, as that the Knife, represented *Plate 43. Fig. 7.* may be strongly pass'd under it. If the Cancer should only possess a small Space, *Bidloo* did not in that Case use the Fork for supporting the Breast, but an Instrument, not unlike a small Sword, which you may see represented *Plate 43. Fig. 8.* All these Instruments must have proper Handles. But because, in our Days, these two Methods of performing the Operation, seem'd too barbarous and cruel, and could not be accomplished without the most exquisite Pain and Horror of the Patient, *Helvetius* made an Attempt not at all inconsistent with the salutary Art of Surgery, when for this Purpose he invented a kind of Forceps; one of which, represented *Plate 44. Fig. 1.* embraces, as it were, in its Arches, the upper Parts of the affected Breast; and the other, represented *Plate 44. Fig. 2.* lays hold of its superior and inferior Parts; so that betwixt them both, they embrace the Whole of the Breast, to the end that it may be the more easily raised, and thoroughly extirpated with the Assistance of a large Knife. But the fourth, and, in my Opinion, the best Method of performing this Operation is, when the Surgeon, without any other Instrument than a large Knife, lays hold of the Breast with one Hand, and elevates it, and with the other cuts out the Parts, over which the Corruption has spread itself. When the corrupted Breast is so large, as that the Surgeon cannot elevate it with one Hand, an Assistant is to do this Office with both his Hands, and the Surgeon is to separate it thoroughly, but at the same time cautiously, from the sound and subjacent Parts. And in this manner, without any other Steel Instrument than a Knife, did I cut off that great Breast weighing twelve Pounds, represented in *Plate 43. Fig. 3.* and that too very expeditiously and successfully. Examples of Cancers cur'd by this Method of Operation may be seen in the forty-fourth Observation of *Scultetus*.

The last Method of performing this Operation is that used a few Years ago by a Dutch Surgeon, and illustrated in a Dissertation wrote by my Townsman Doctor *Tabor*, who also describes an Instrument fitted and adapted to that end; a Representation of which may be seen *Plate 44. Fig. 3.* The corrupted Breast is embraced by the Arches A A, B B, of this Instrument *Plate 44. Fig. 3.* as may be seen in *Fig. 4.* of the same Plate. The Extremities of these Arches C C, *Fig. 3.* are shut with the Left Hand, that so the Root or Basis of the corrupted Breast may be pretty strongly compressed. Then by a sharp crooked Instrument represented by E F, and which should pass through the Cleft of the other Arch D D, the Breast is very diligently to be cut off. But however curious this Instrument may seem, or however specious and ingenious this Method of Operation may appear, yet I cannot help thinking, that the plain and simple Method, directed above, is preferable to it; but as it is a late Invention, I chose to pass it over in Silence. A fuller Explication of the Figure will be given in the Description of the Figures of *Plate 44.*

When the Breast is cut off, in whatever Method it has been done, it is proper, if the Patient's Strength will admit of it, to take away some Ounces of Blood even before the Application of the Bandage, for preventing, as we already hinted, Inflammation and an Hemorrhage. The Opinion of some Surgeons, who imagine, that by this means the vitiated or cancerous Blood is quite drawn away, seems to be a Matter of no Consequence. But when the Patient is weak, it is more advisable, immediately after the Operation, to apply a proper Bandage, than by an unseasonable and ill-tim'd Bleeding, to render her more and more weak. I am not indeed ignorant, that *Bidloo* and *Garengot* imagine, that in this Case there is no Danger of an Effusion of Blood, but that it is easily stopp'd and repress'd; but Experience has taught me the contrary; for I have often observed large Quantities of Blood break through thick Dressings and Bandage, by which means the Patients were considerably reduced. 'Tis therefore absolutely necessary in this Case, carefully and cautiously to apply Bandage.

In what manner Bandages may be most advantageously apply'd, we have already directed. I must only here give a Caution not to remove them before the third Day, and even then they are not to be violently torn away, but allow'd to fall off of their own accord. Besides, the less frequently, and the more circumspectly, the Dressings are renewed, the Agglutination

succeeds proportionably the better. But if, in the Course of the Cure, too great a Quantity of purulent Matter should happen to flow from the Wound, in that Case the Dressings are to be frequently renew'd; and lest the Patient should be too much reduc'd, or even quite destroy'd, by a copious Discharge of the purulent Matter, the digestive Ointment will be more properly omitted, and Lint either dry, or slightly soak'd in Essence of Myrrh, and Amber, substituted in its Place. A certain Surgeon told me, that in Cases of this Nature, he us'd with Success burnt Alum, with the Addition of a small Quantity of red precipitate Mercury; and that by this very Means, a firm Cicatrix was very soon brought over the Parts.

That the Patient's lost Strength may be gradually restor'd, she must be careful to use not only Foods that are of good Nourishment, and easy Digestion, such as Broths, Jellies, soft Eggs, and other Aliments of a like Nature, but also cordial Medicines, and especially grateful and palatable Emulsions. Great Care on the other hand is to be taken, lest the Wound agglutinate too soon; for in this Case, as some Authors have observed, the Malady gathers fresh Strength, and returns with greater Violence. For which Reason, if there is any apparent Danger of this Misfortune, Honey of Roses is now-and-then to be used in the Dressings, that so a due Suppuration may be kept up for a sufficient time; but when the Cancer is once cured, the Patient must take great Care always to observe a strict and proper Regimen, and to shun the Exorbitancies of the tumultuous and ungovern'd Passions. She is likewise at stated Seasons of the Year, especially in the Spring and Autumn, to use purgative Medicines, and to have as much Blood taken from her, as her State shall require.

When in the Course of the Cure, a vehement Fever, accompany'd with violent Pains about the *Præcordia*, and a Difficulty of Breathing seize the Patient, certain and unavoidable Death is generally the Consequence. That this may not therefore prove the Patient's Fate, Blood is to be taken from her in time, and Medicines preventive of these Disorders prescrib'd. There are indeed some Women, who bear this Operation with uncommon Fortitude, and more than heroic Bravery of Mind; whereas others of their Sex, lose their Courage so far, as to shriek and cry in a manner so terrible, as is sufficient to shock and confuse the most intrepid Surgeon, and disconcert him in his Operation. 'Tis therefore absolutely necessary in this Case, that the Surgeon, as *Celsus* directs, be intrepid, and acquit himself in all the Steps of his Operation, in such a manner, as if he was deaf to the moving Groans, and piercing Shrieks, of the tortur'd Patient.

Mr. Sharp's Observations on this Subject must not be omitted, as they acquaint us with several Particulars of Importance.

The Success of this Operation is exceedingly precarious, from the great Disposition there is in the Constitution, after an Amputation, to form a new Cancer in the Wound, or some other Part of the Body. When a Scirrhus has admitted of a long Delay before the Operation, the Patient seems to have a better Prospect of Cure, without Danger of a Relapse, than when it has increased very fast, and with acute Pain. I cannot, however, be quite positive in this Judgment; but upon looking round amongst those I know, who have recovered, find the Observation so far well grounded. There are some Surgeons so disheartened by the ill Success of this Operation, that they decree it in every Case, and even recommend certain Death to their Patients, rather than a Trial, upon the Supposition it never relieves; but the Instances where Life and Health have been preserved by it, are sufficiently numerous to warrant the Recommendation of it.

The Scirrhus may be distinguished by its want of Inflammation in the Skin, its Smoothness and Slipperiness deep in the Breast; and generally by its pricking Pain, which, as it is more or less, increases the Danger accordingly, though there are some few with little or none in the Beginning. As the Tumour degenerates into a Cancer, which is the worst Degree of Scirrhus, it becomes unequal and livid; and the Vessels growing varicose, at last ulcerates.

In extirpating the Scirrhus, if it be small, a longitudinal Incision will dilate sufficiently for the Operation; but if too large to be dissected out in that manner, an oval Piece of Skin must be cut through first, the Size of which is to be proportioned to that of the Tumour: For Example; if the Swelling is five Inches long, and three broad, the oval Piece of Skin cut away must be nearly of the same Length, and about an Inch and an half in Breadth. In taking off the whole Breast, the Skin may be very much preserved, by making the Wound a great deal less than the Basis of the Breast, which must be carefully clear'd away from the Pectoral Muscle. This is not difficult to do, because all these Scirrhi, being enlarged Glands, are encompassed with their proper Membranes, which make them quite distinct from the neighbouring Parts, and easily separable; at least this is the Case when the Tumour is move-

able; for sometimes it adheres to the subjacent Muscle, and that Muscle to the Ribs; in which Circumstance the Operation is impracticable. When it is attended with Knots in the Armpit, no Service can be done by Amputation, unless the Knots be taken away; for there is no sort of Dependence to be laid on their subsiding by the Discharge of the Wound of the Breast. The Possibility of extirpating these Knots, without wounding the great Vessels, is very much question'd by Surgeons; but I have done it when they have not lain backwards and deep.

The Bleeding of the large Arteries is to be stopp'd by passing the Needle twice through the Flesh, almost round every Vessel, and tying upon it, which will necessarily include it in the Ligature. In order to discover the Orifices of the Vessels, the Wound must be clean'd with a Sponge wrung out of warm Water.

The scirrhus Tumours that appear about the lower Jaw, are, generally speaking, scrophulous Disorders, that distinguish themselves almost by the Circumstance of fixing on the Salivary Glands. These are very stubborn of Cure, but not so bad as the Scirrhus, since they frequently suppurate, and heal afterwards. If they impoſthumate again after healing, 'tis for want of a good Bottom, which may sometimes be procur'd by destroying their bad Surface with a Caustic, and is a Method I have often practis'd with extraordinary Success. Besides these, there is another Species of Scirrhus in the Neck, that succeeds better after Extirpation than either of the former Kinds; this is an Enlargement of the Lymphatic Glands, that run close up by the Jugular Vein; and is distinguishable from Cancers of this Part, by its Moveableness, want of Pain, the Laxness of the Skin covering it, the small Degree of Pressure it makes on the Oesophagus and Trachea; and lastly, the good Habit of Body, as it seldom affects the Constitution, which Cancers here do very early after their first Appearance. This Tumour, from its Situation, requires great Exactness in the cutting off. The last I took away of this Kind, I separated from the Jugular Vein near the Length of an Inch and an half; they sometimes extend up the Chin towards the Mouth, and occasion a Division of the Salivary Duct in operating, which proves very troublesome to heal; but when all other Methods have fail'd, may be cur'd by a Perforation into the Mouth, through that Part of the Cheek where it is wounded, which by a Tent, or small Seton, may be made fistulous; then by dressing upon the Outside, the oozing of the Saliva that way will be prevented, and the external Orifice healed without Difficulty.

The Treatment of all these Wounds may be with dry Lint first; and afterwards, as in the common incised Wounds. *Sharp's Surgery.*

As Accident sometimes, but more frequently Lewdness and Debauchery, lay People under a Necessity of having the Whole, or a Part of their Penis amputated, I must not omit the Method of performing the Operation.

Amputation of the Penis.

If at any time a Gangrene should happen in the Penis, in Consequence of an Inflammation, a Phimosis, or Paraphimosis, then the same Method of Cure is to be pursu'd, which is laid down under the Article PHIMOSIS.

But if a Sphacelus, or a Cancer in Consequence of a scirrhus Gland should appear in the Penis, then every Part, to which the Contagion has reach'd, is with all Expedition to be extirpated, lest the Taint diffuse itself farther, and the Patient's Misery be produced by the Surgeon's Negligence. The most convenient and proper manner of performing the Operation is this: A small Tube of Silver or Lead, a little longer than the Part affected, is inserted into the Urethra, and pass'd a little farther than the Extremity of the corrupted Part. Then the sound Part of the Penis, which next adjoins to the corrupted Part, is to be tied with a strong linen or silken Ligature, in the same manner as when Tubercles or Excrescences of Flesh are to be taken off by Bandage. Then the Tube inserted into the Urethra is carefully fix'd, that it may not slip out, but afford an easy and open Passage for the Urine. The Ligature is left upon the Penis; and if Necessity require it, may be made tighter next Day, by applying another above it; and by this means, after some Days, the corrupted Part falls off where the Ligature was made. I am not ignorant, that some Surgeons forthwith cut off the corrupted Part, and that the Blood is sometimes stop'd, and the Wound happily and thoroughly agglutinated by actual Caustery, or styptic Medicines: An Instance of which may be seen in the fifty-sixth Observation of *Scutetus*. But as this Method of Cure seldom succeeds well, and for the most Part draws a Train of dismal Consequences after it, I cannot help preferring the way by Ligature to it. Besides, when there is only a part of the Penis taken off, there remains, after the Cure, a certain Power of Procreation, which bears a Proportion to the Size of the remaining Part.

Whoever is desirous of seeing Cases of this Nature, let him consult, besides *Scutetus*, *Hildanus*, *Observat.* 60. and 65. *Ruyfchius*

Ruyfchius, Cont. 3. Observat. 88. and Doebelius, Observat. 30. for he has written a Treatise upon this very Subject. *Heijster, Tom. 2.*

C A S E S.

One *Peter Perrod*, a Blacksmith, in a small Village near *Lausanne*, of forty Years of Age, of a melancholic Constitution, and who led a Country Life, had from his Infancy been troubled with a Wart on the Top of the Glans Penis, not exceeding the Size of a Lentil. Before Marriage he felt no Pain from it, unless upon some accidental Collision; but when he chang'd his Condition of Life, and enter'd into the Marriage State, by the Attrition of the Parts, during his Embraces, he began to feel a Pain so intense and uninterrupted, that he was forc'd for thirteen Years to part Beds with his Wife. But in Process of Time, the Pain increas'd, and the Wart degenerated into a monstrous Cancer, as large as a new-born Child's Head. His Penis was in a manner transform'd into a Mass of Flesh of a livid Colour, and uneven on its Surface. The Smell it exhal'd was so rank and disagreeable, that his Friends and Acquaintance could no longer endure to be in the Place where he was. A great many Ulcers, thro' some of which his Urine came, surrounded this cancerous Fungus. The Disease growing daily worse and worse, Physicians of all Characters were consulted, but all in vain. When the Patient's Case was by them all pronounc'd desperate and incurable, when his Life was in imminent Danger, and the Excess of his Misery mov'd the Compassion of all about him, he implor'd my Assistance; and that worthy old Clergyman *Petrus Pagefius*, who was at once a venerable Model of Piety and Erudition, prevail'd upon me to undertake the Cure, which I did, after I had declar'd my Sentiments to his Friends, and the rest of the Company present. When I had diligently examined his Case, I found it to be very terrible; for the Cancer had by this time thrust its Roots as far as the Abdominal Vessels, and fix'd them there: For this Reason I judg'd it more advisable to try the last Remedy, or in other Words, to cut off the Member, than to leave a Man, who had already suffer'd so much, in such Excess of Agony and Pain.

As for the Cure itself, I proceeded in it after this Manner:

After prescribing the Regimen I thought most proper, I purg'd him with this Potion:

Take of the Herbs Fumitory, Scabious, Dodder, and Spleenwort, each half an Handful; of Anise-seeds, half an Ounce; of Sena-leaves, three Drams: Boil all together in such a manner, that the Liquor to be strained off amount to no more than three Ounces, in which dissolve three Drams of the Confection of Hamech, a sufficient Quantity of the solutive Syrup of Roses, made with Rhubarb, Agaric, and Sena; to which add one Ounce of Cinamon-water distill'd without Wine: Mix all up together into a Potion, to be given pretty early in the Morning.

Next Day I open'd a Vein in his Left Arm, and took six Ounces of Blood from him. Then, for the better Preparation and Evacuation of the Humours, I prescribed the following Apozem:

Take of the Roots of Succory, with the whole Herb, the Roots of sharp-pointed Dock, Purslain, Polypody, the greater Figwort, Tamarisk Bark, and the inner Roots of black Alder, each one Ounce; of the Herbs Agrimony, Speedwell, Scabious, Dodder, Spleenwort, golden Maiden-hair, Crane's Bill, of each a Handful; of the three cordial Flowers, Broom, and Elder-flowers, of each one Pupil; of Liquorice, and ston'd Rasins, each an Ounce: Boil in a sufficient Quantity of Water to a Consumption of a third Part. In a Pint and an half of the strain'd Liquor infuse and macerate according to Art, two Ounces of pick'd Sena-leaves; of the Roots of Bastard Hellebore, that is, the Root of the Female Sanicle of Fuchsius, and of Polypody, each one Ounce; of Agaric newly reduced into Troches, three Drams; of the best Rhubarb, three Drams: Make a Potion, according to Art, for four Mornings.

Having with the above Medicines purg'd his Body, and ordering him to discharge the Contents of his Bladder, upon the tenth of July 1601. I plac'd him in a Seat, and in the Presence of that renown'd and learned Gentleman *Johannes Rheuterius*, Professor of Hebrew in the School of *Lausanne*, *Glaudius Mariones*, a most knowing Apothecary, *David Clerk*, and some others who are still alive, I extirpated his Penis in the very Abdomen itself; then I apply'd my styptic Powder upon Stupes dipt in Whites of Eggs; and with Cloaths folded, and dipt in Oxycrate, I wrapt up his Scrotum and Groins, and apply'd proper Bandage; which being done, I appointed Servants, who, in their Turn, should, with their Hand wet in

Oxycrate, press gently upon the Stupes, lest an Hæmorrhage should happen; for in this Case the actual Cautey is highly dangerous, both because it may obstruct the urinary Passage, and bring on an Inflammation of the Bladder, and adjacent Parts. The Wound being dress'd in this manner, I allow'd it to remain untouch'd till next Day. Then by the Use of Digestives for some Days after, anointing his Belly, and the Parts adjacent to the Wound, with Oil of Roses, and Myrtles, and by applying a defensive Plaister to the lower Part of his Belly, I cur'd the Wound in my ordinary manner. By the Use of these Means, accompany'd with the Blessing of God, he recover'd his Health perfectly.

For a Conveyance to his Urine I order'd him a very simple Instrument, not unlike a human Penis, which he used immediately after the Cure, with little or no Degree either of Difficulty or Pain. Besides, he enjoyed such a good State of Health, and perform'd the several Branches of his Profession, with such Ease and Freedom, that all who had an Opportunity of knowing his deplorable State, were struck with Surprize at so complete and so unexpected a Cure.

Besides, since some imagine, that a Cancer extirpated in one Part never fails to appear in another, 'tis worth while to observe, that this Man liv'd for many Years without the least Symptom of that Kind; enjoyed so good a State of Health, that he followed his own Trade, and other Parts of Country Labour, without the least Impediment, and even without the Instrument he used at the Beginning, discharg'd his Urine as freely, as if he had an entire and sound Penis, since he was able to throw it out a considerable way; and which is still more surprising, he several times told me, that he was very often tantalized with a Stimulus to Venery. At last, however, he died, about the End of the Year 1611. when I was in the *Netherlands*; but what the Disorder which prov'd fatal to him might have been, I cannot tell.

During the War between the Duke of Savoy, and the Inhabitants of *Geneva*, a Soldier happen'd in a Skirmish to have his Penis struck off by the Shot of a Musket. Being brought to *Geneva*, he was happily cur'd by that skilful Surgeon Mr. *John Griston*; but in this Patient the Hæmorrhage was not great, otherwise the Cure had been difficult and dangerous, as might be confirm'd from many Instances.

In the last Observation but one, I gave an Instance of a Penis cut off, and cur'd with Success. I shall now shew, from two Instances, that Operations of this Kind are highly dangerous, unless when perform'd with Skill, Dexterity and Caution.

In the Year 1581. a poor Countryman went out a begging; and having a pretty weighty Bag hung about his Neck, he had the Misfortune to attract the Eyes of a Cut-purse, who, while he was deliberating about the most proper Expedient for getting it into his Possession, observed, that when the poor Man bended his Body forwards, the Bag hung down between his Thighs; and that when he recovered his Body from that Posture, the Bag was again rais'd to his umbilical Region. When he had thus taken his Observations as accurately as he could, and saw the poor Man standing before a Shop, and gazing on the Commodities, he secretly came behind him, and seizing at once his Penis and the Neck of the Bag, he cut both off at one and the same time. But the miserable Countryman, falling upon the Ground, expired upon the Spot.

In the Year 1582. a Man of about forty Years of Age, labouring under a malignant Ulcer in the Glans of his Penis, had the Misfortune to fall into the Hands of a Surgeon who was none of the most skilful: He having cut off the Glans, and not being furnished with styptic Powders strong enough for stopping the Blood, set about heating the first Piece of Iron that presented itself to him in the Kitchen, during which time, so terrible an Hæmorrhage happened, that the Patient died a few Days after; for so great an Hæmorrhage had impaired his Strength so entirely, that it was impossible to restore it. Hence young Surgeons ought to learn, that the greatest Skill, Diligence, and Caution, are necessary for cutting off a Penis in a proper manner. *Hildanus, Cent. 3. Observ. 88, 89.*

The human Penis may be successfully enough extirpated, provided the several Steps necessary be carefully and faithfully taken.

A Countryman had for two Years been troubled with a scirrhous Swelling on the Glans of his Penis, which at last degenerated into an exulcerated Cancer, and became as big as a Person's Fist. *Joachim Schrader*, a skilful Surgeon, who had the Cure entrusted to his Care, called that experienced Physician Dr. *Hiddingh*, myself, and *Andrew Borkelman*, together with his Son *Cornelius*, to a Consultation. We unanimously approved of Extirpation, which was accordingly set about next Day, and that, Thanks be to Heaven, with such Success, that tho' he lost his Penis, he returned home with his Health, which he still continues to enjoy. The Operation was performed in this manner: Having passed a Catheter up his *Urethra*, into the Cavity of his Bladder, we made a strong Ligature

Ligature upon his Penis, just behind the affected Part, with a Cord, which was indeed small, but capable of making a very great Compression. The Patient bore the Agonies of the Operation with such a manly Courage, as surpris'd all the Spectators; for he was only heard to utter a few Complaints. After we had apply'd this Ligature, we so fixed the Catheter with Thread, that it could not slip out of the Urethra. Next Day we apply'd a fresh Ligature, that the Part affected might mortify the sooner. In the mean time we wrapt up the Whole of his Penis in a wet Bladder, for the Reception of his Urine, and preventing a bad Smell. Upon the fifth Day, if I rightly remember, the mortified Part was cut off with a Knife, without any Hæmorrhage ensuing, because it was totally mortified. We still left the Catheter in his Urethra for a Day or two, till the Ligature should come off of its own Accord, and the Patient stand no longer in Need of it. Being now recovered, he discharged his Urine thro' an ivory Instrument; for that Part of his Penis which was left, had wholly shrunk back into his Abdomen, so that he was oblig'd to use this Instrument to prevent his Cloaths being made wet. *Ruyfch, Vol. 1. Obser. 30.*

AMPUTATIO is used by *Cælius Aurelianus* in a Sense different from that already explain'd. Thus *Acut. L. 2. C. 6. and 10.* VOCIS AMPUTATIO imports a Deprivation of Speech, or Inability to speak. And the same Words are also used by this Author, *Chronic. L. 4. Cap. 7.* in exactly the same Sense.

In this Author also *amputare Vires* signifies to render weak, or take away Strength.

Nervos amputare also in this Author signifies to take away the Strength.

AMUCIICA, ἀμυκτική, from ἀμύνα, to vellicate. *Cælius Aurelianus, Chron. L. 2. Cap. 6.* uses this to express Remedies, which by vellicating and stimulating the Bronchia, raise a Cough, and by that means contribute to the Discharge of whatever is offensive to the Lungs. These Medicines are the same as those call'd ARTERIACA.

AMVETTI, or Vetti-Tali, otherwise distinguished by the Name of *Arbor Indica, Floribus spicatis, Seminibus parvis in Fasciculis siccis.*

It is the Name of an *Indian Tree*; but I don't find any medicinal Virtues attributed to it.

AMULETA, Amulets. As these and Charms are nearly ally'd together, I shall treat of them under the same Article.

As we learn from sacred History, that Idolatry had diffused its baleful Influences over the Minds of Men long before the Days of *Moses*, so 'tis probable, that Magic, and the ridiculous Attempts to prevent Diseases, and restore Health, by the Use of Charms and Amulets, are as old, since they seem to be closely connected, and nearly ally'd to each other. As this is the Case, it must be as difficult to trace the Origin of Magic and Amulets, as of Idolatry itself: But as Disquisitions of this Nature are foreign to our present Purpose, we refer the Curious to those Authors who have wrote expressly upon that Subject.

That we may deviate from our Subject as little as is possible, it is sufficient for us to know, that these illicit Methods of procuring Health, which were founded on a false Religion, and supported by the Credulity of a giddy and unthinking Multitude, were not only practis'd, but in a manner incorporated with Physic, long before the *Greek Æsculapius*, who in all Probability practis'd them himself.

As to the Manner in which this Abuse crept into Physic, and the Motives that have induc'd Mankind to prostitute their Understandings, and affront their Reasons, so far as to countenance it, 'tis probable, that Men seeing the natural Means of preserving Health, and preventing Death, frequently unsuccessful, grasp'd at every thing that first presented itself, and believ'd the first Impostor, who had Confidence and Wickedness enough to impose upon them. They allow'd themselves to be so much the more easily decoy'd in this Particular, because they imagin'd, that tho' these superstitious Practices should happen to do no Good, yet at least they could not possibly do any Harm; and though they were of themselves without Virtue, and without Efficacy, yet to authorize and establish their Use, it was sufficient, that some Persons believed, that they reap'd Advantage, and received Ease, from them. It is even possible, that the Relief afforded by these Charms might have been real, since the Force of Imagination in the Patient might have supply'd the Defect of medicinal Virtue in the Amulet; and the Impression made upon the Mind by it, might have communicated itself to the Body, and chang'd the State and Condition of its Parts. If to what has been said we join these two Considerations; that these Amulets were not, like other Remedies, ungrateful and painful; and that Religion, or rather Superstition, which has too great an Influence over all Mankind, join'd her sacred Sanction, and pronounc'd them lawful. I say, if we reflect upon these things, we shall not be surpris'd, that Men fell into the Mistake, embraced the agreeable delusive Error, and justified their Prostitution of Sense and Reason, by an Allegation of imaginary good Effects produced by them.

Whether besides the Craft and Artifice of Men, there was any thing more in the Matter, is a Point, the Decision of which I leave to Divines. But whatever the Case be, certain it is, that Charms and Incantations have been so effectually introduced into Physic, that all the Nations of the World have used them Time out of Mind. The *Pagans* are not the only People who have fallen into this Folly. Those who have been honour'd with the Knowledge of God, have allow'd themselves to be corrupted and carried off by the bad Example of their idolatrous Neighbours; and some even of those who have been accounted the wisest of Men, whatever the Religion they profess'd was, have been so weak and superstitious as to split upon this Rock, as well as the Vulgar; tho' there have been in all Ages, even among the *Pagans*, some free unletter'd Souls, who nobly dar'd to think for themselves; who look'd thro' the Mask, and sneer'd at the wild Delusion.

Sometimes People charm'd by single Words, or by certain Sentences, whispered in the Patient's Ear, or even pronounced at a Distance from him, with an Intention to cure him; and this Form was always accompany'd with various other Ceremonies. These Words or Sentences were called by the *Greeks* *ερασιδαί*, by the *Latins* *Incantamenta*, or *Carmina*, which Words correspond precisely to our *English* Words *Incantments* and *Charms*, as being a sort of Song pronounced over any one; for the Words were generally in Verse, or at least pronounced with the Air and Spirit of a Song; not but that they also made use of Prose for this Purpose, and even employed barbarous and insignificant Words, which neither he that performed the Ceremony, nor he for whose sake it was performed, understood.

At other times they wrote these Words or Sentences on certain Substances, which they tied to some Part of the Patient's Body, or made him carry about him. These are what the *Latins* call *Amuleta*, probably from the Verb *amovere*, to remove or take away; they call them also *Proëbia* or *Proëbra*, from *prohibere*, to guard or defend. The *Greeks* have with a like Propriety and Significancy call'd them *Apotropæa*, *Phylacteria*, *Amynteria*, *Alexiteria*, and *Alexipharmaca*, because they imagin'd, that these Remedies could defend them, not only against such Diseases as proceed from natural Causes, but also against the Charms or Incantations which might have been used by others, with a View to hurt or destroy them.

These Amulets were made of Stone, Metal, Simples, Animals, and in a Word, of every thing their Fancy suggested, or their Caprice directed them to. Upon Stone, Metal, and Wood, they engraved Characters, Figures, or Words, which were to be disposed and ranged in a particular Order, as well as those delineated on Paper. Such is that prescribed by *Serenus Samonicus*, for the Cure of a certain Species of Fever, call'd by Physicians *Hemitritæa*. The Cure consists in writing the Word *Abracadabra* in a certain manner upon Paper. See *ABRACADABRA*.

The *Jews* have attributed the same Virtue to the Word *Abracalan*, pronounced in the same manner. See *ABRACALAN*.

We find in *Marcellus Empericus*, in *Trallian*, and other Authors, several Examples of Amulets made by Characters, rang'd in a certain Order, and engraved upon Metal, Wood, or Stone.

Sometimes they neither wrote nor engrav'd any thing upon the Substances intended for the Amulets, but used a great many superstitious Ceremonies in preparing and applying them. Not to mention the Pains they were at in observing, whether the Stars were favourably dispos'd, or not. The *Arabians* have given this last Species of Amulet, the Virtue of which depends principally upon the Influence of the Stars, the Name of *Talisman*, which in their Language signifies an Image.

Amulets were made of all Forms, and tied to all Parts of the Body; for which Reason they were also call'd *Periapta*, and *Periammata*, from a *Greek* Word which signifies *to tie about any thing*. Some of these resembled a Piece of Money, thro' which they bor'd a Hole, and with a Piece of Thread hung it about the Patient's Neck. Others of them were in the Form of Rings, which were put upon the Fingers, or other Parts of the Body. Others of them were contriv'd in the Form of Bracelets, or Necklaces, which were wore upon the Arms, and about the Neck; and some of them resembled Crowns, with which the Patient's Head was incircled.

We may join in the same Class with Amulets and Charms, all the other superstitious Remedies, in which the Antients repos'd so much Confidence, and of which they used so great a Number. There were, for Instance, certain Simples, which they could neither gather, prepare, nor apply, without at the same Time performing some Ceremonies, which, consider'd in themselves, could neither facilitate the Operation of the Medicine, nor augment its Virtue, and seem'd altogether of an indifferent Nature, but without which it was pretended that the Remedy was useless. The Writings of the antient Physicians abound with Descriptions of Remedies of this Nature, which are still used by Quacks, old Women, and others

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others who have the Misfortune to be under the Influences of Credulity and Superstition. See *BARA*.

There are also a kind of Amulets, in which neither Charms nor Superstition had any Share, tho' no Person could account for the Effects attributed to them, nor comprehend the Manner in which they acted. These are, at this very Day, approv'd of by some Physicians, and as industriously ridiculed and despised by others. *Le Clerc. Hist. de la Médecine.*

Amongst Amulets and Incantations, none seems to have gain'd so great a Reputation as the Royal Touch for the King's Evil, which has the Appearance of being a Mixture of both. There is scarcely a Royal Family in *Europe*, which does not pretend to inherit from some of their pious Ancestors, the Power derived from Heaven, of charming this Distemper. This Claim would be more justifiable, if most of their Thrones had not originally been gain'd by Rapine and Violence, and supported by an almost continual Series of Oppression and Injustice, which are not likely to draw down from Heaven any extraordinary Benediction. If, however, we look upon this sort of Incantation as a Piece of political Craft, we shall have Reason to believe it has its Origin more in Villainy than Folly: For Miracles are very proper to extort a Veneration from the Vulgar, and impose upon Minds furnish'd with little Sense, and much Credulity. I am sensible, that many grave Authors have treated this miraculous Method of Cure as a Reality, and that there are not wanting Persons, who at this Day, pretend to produce Instances of People who have been healed by the Royal Touch. But, at the same time, I can produce as good Evidence of Tricks play'd by Witches, Spirits, and Fairies, which however I cannot implicitly believe. I should therefore think it more probable, that those who relate and assert Stories either of Witches, or Cures by the Royal Touch, have suffered themselves to be imposed upon through a little Enthusiasm, and a Fondness for the Marvellous, or intend to impose upon others, than that such Relations should be true. I will not deny, that the Solemnity of the Ceremony, and the Presence of a crown'd Head, may possibly strike the Person touched with an Awe and Surprise, which may induce some Alteration in the Circulation of the Blood, and consequently upon the Solids and Fluids of the Body; but this Cause does not appear adequate to the Effects attributed to it. It is possible also, that the Gold worn about the Neck may have some salutary Influence, if it can attract to itself, and draw out of the Body the Matter, which is the immediate Cause of the King's Evil, as it does Mercury, which however is not so certain as to be depended upon.

AMURCA is the Forces which subsides to the Bottom of the Vessel, where the Oil of Olives newly express'd is put.

It is emollient, lenitive, and resolute, and proper to ease Pains in the Head, being applied to the Forehead, and to stop Fluxions. *Lemery de Drogues.*

The medicinal Virtues of Amurca, as related by some of the Antients, are somewhat different from those mentioned by *Lemery*.

AMURCA, ἀμύρα, is the Lees or Sediment of the pressed Olive.

Boiled in a copper Vessel to the Consistence of Honey, it becomes an Astringent, and is serviceable in the Tooth-ach, and for Wounds, being mixed with Vinegar, Wine, or Wine and Honey, [σπύρισμα] and the Parts anointed therewith. It is also an Ingredient in Collyria and Plasters. The older it is, the better. Administered in a Clyster, it is good for Exulcerations of the Anus, Pudenda, and Uterus. Boiled with Omphacium to the Consistence of Honey, it draws out rotten Teeth, that are anointed with it. A Decoction of it with Lupines and the Chamæleon, cures the Scab in Cattle, being rubbed over with it. Crude and new, it makes a good Fomentation for those who are afflicted with the Gout in their Feet or Joints.

Being spread upon a Sheep-skin with the Wool, and apply'd to hydropical Persons, it represses the Swelling. *Dioscorides, Lib. 1. Cap. 138.*

Amurca is of an earthy Substance, hot, but not sensibly acid. When boiled, it becomes of grosser Parts, and more dry. *Orib. Med. Coll. Lib. 14. Cap. 1.*

By reason of its heating and intensely drying Qualities, it cures Ulcers in Bodies that are of a dry Temperment; but in all others increases and exasperates them. *Actius Tetr. 1. Serm. 1. Æginet. Lib. 7. Cap. 3.*

AMYCIE, ἀμυγχι, a superficial Exulceration, Laceration, or Scarification of the Skin.

It is derived from ἀμύωω, to scratch, and is sometimes used by *Hippocrates*. Hence *AMYCTICA*, Stimulating, Vellicating, used by *Cælius Aurelianus, Lib. 2. Cap. 6.*

AMYDROS, ἀμυδρὸς, somewhat obscure, scarcely to be seen. It is used by *Hippocrates* in his Treatise *de Insomniis*.

AMYGDALÆ, Almonds, the Fruit of the *AMYGDALUS*, which see. It also sometimes signifies the *TONSILLÆ*, which see.

AMYGDALIA, ἀμυγδαλία, Almonds. *Hippocrates de Morbis, Lib. 2.*

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AMYGDALATUM, an artificial Milk made of Almonds, usually called an Emulsion.

AMYGDALOIDES, a Name by which *Oribasius* calls the Tithymalus, which, he says, goes also by the Names of *Tithymalus Mas*, *Characias*, *Cometes*, and *Gobius*. See *TITHYMALUS*.

AMYGDALOPERSICUM, the Almond Peach. It is also called *Persica Amygdaloides*.

AMYGDALUS amara, & *dulcis*, Offic. J. B. 1. 174. Mont. 36. Jonsl. Dendr. 122. *Amygdalus sativa*, C. B. Pin. 441. Raii Histor. 2. 1519. El. Bot. 497. *Amygdalus sativa, fructu majore*, T. Inst. 627. Boerh. Ind. A. 2. 245. *Amygdalus*, Chab. 12. Ger. 1256. Emac. 1445. Parkins. Theat. 1515. The ALMOND-TREE. Dale.

The Decoction of the Roots of the bitter Almond-tree, bruised, clears the Face of Freckles; and a Cataplasm of the Almonds has the same Effect. Apply'd by way of Pessary, they provoke the Menfes; and made into a Cataplasm with Vinegar and Oil of Roses, and apply'd to the Forehead or Temples, they ease Pains of the Head; with Wine they cure the Epinyctides [Pustules arising in the Night]; and with Honey are properly apply'd to putrid and spreading Ulcers, [σπυρδίναις καὶ ἐπινύκτι] and the Bites of Dogs. Being eaten, they ease Pain, loosen the Belly, incline to Sleep, and provoke Urine. Taken with Amylum, they help such as vomit Blood; drank in Water, or made into an Eclegma with Resin of Turpentine, they relieve those who are afflicted with Diseases of the Kidneys, or labour under a Peripneumony. Taken in Raisin-wine, [ζαλυσά] they relieve such as are troubled with a Difficulty of Urine, or the Gravel. Made into an Eclegma with Honey and Milk, and taken to the Quantity of a Hasle-nut, they cure Diseases of the Liver, Coughs, and Inflammations of the Colon; eaten before drinking, to the Number of five or six, they prevent Drunkenness. They kill Foxes, being mixed with their Food. The Gum of the Tree is astringent and heating; and, drank, relieves those who bring up Blood. Mixed with Vinegar, and the Parts anointed therewith, it takes off Tetter that affect only the Superficies of the Skin. Drank in Wine and Water, it cures an inveterate Cough; and drank in Raisin-wine, it relieves those who are afflicted with the Gravel.

The sweet and esculent Almond is much inferior in Virtue to the bitter one, though it attenuates, and provokes Urine. Green Almonds, eaten with their Shells, amend the preternatural Humidity of the Stomach. *Dioscorides, Lib. 1. Cap. 176.*

Oil of bitter Almonds, which some call *Metopium*, is thus prepared:

Take of bitter Almonds, clean'd and dry'd, six Pints; bruise them gently in a Mortar with a wooden Pestle, till they come to a Paste, and thereto pour two half Pints of boiling Water. Let it alone for half an Hour to imbibe the Moisture, after which beat it again more strongly, and pressing it, put what sticks to the Fingers into a Muscle-shell. This done, pour again half a Pint of Water to the Mass, and suffering it to imbibe the same, do as before. Every six Pints of Water will produce half a Pint of Oil.

It is effectual against Pains and Strangulations of the Uterus, and against Contortions and Inflammations of the same Parts; also for Pains of the Head, and Pain and Noise, or Ringing in the Ears. It helps those who are afflicted with Diseases of the Kidneys, a Difficulty of Urine, the Stone, the Asthma, or Disorders of the Spleen. Mixed with Honey, Root of Lilly, and *Cyprian* Cerate, or Cerate of Roses, it clears the Face of Spots and Freckles, from Sun-burning, and smooths it from Wrinkles; it also rectifies a Dimness of Sight, and deterges Achors, and Scald Heads. *Dioscorides, Lib. 1. Cap. 39.*

Troches of bitter Almonds are thus prepared:

Take of Anise, the Seed of Smallage, Asarabacca, bitter Almonds, the Tops of Wormwood, of each an equal Quantity, and make them up with Water into Troches of the Weight of a Dram. To a Patient in a Fever give them in Hydromel; to one without a Fever give them in Wine and Water [σπύρισμα]. *P. Ægineta, Lib. 7. Cap. 12.*

Oil of Almonds is prepared after the following manner:

Take clean bitter Almonds, and pound them, instilling now-and-then a little Water; this done, to the Quantity of four Ounces put a Pint of sweet Oil; let it stand forty Days in the Sun, or let it boil three Hours in a double Vessel, and then strain it for Use. Some put two Ounces of bruised Almonds to an *Italic* Pint of Oil, and boil it in a double Vessel.

An Oil of Almonds, called also *Metopium*, prepared differently from that described by *Dioscorides*:

Take of Oleum Omphacinum, [Oil expressed from unripe Olives] twenty Pints; of bitter Almonds, two Pounds; of

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of Cardamoms, one Pound; of the Flowers of Juncus Odoratus, Calamus Aromaticus, Carpobalsamum, each one Pound; of Myrrh, Galbanum, each half a Pound; of Turpentine, two Pounds; of sweet-scented Wine, to macerate the dry Ingredients in, four Pints; of Attic Honey, three Pounds. Bruise and dissolve the Galbanum and Turpentine in Part of the Oil, and mix them with the rest of the Ingredients after they are boiled, and then add the Honey. When all is thoroughly mixed, take it off the Fire whilst it is in a gentle Warmth, and strain it; for when cold, it is thick.

The Egyptians, who invented this Oil, called it *Metopium*, because it had Galbanum for an Ingredient, which was the Produce of a Plant called *Metopium*. *P. Æginet. Lib. 7. Cap. 20.*

AMYGDALIS AMARA ET DULCIS: This Tree is so much like the Peach, both in Leaves and Blossoms, that it is hard to know them asunder, but by their Fruit, which is less in this, containing little or no pulpy Flesh, but a tough cottony Skin, under which is the Stone, which is smoother and more pointed at one End, but full of little Hollownesses. The Kernel of this is the Almond, not distinguishable whether bitter or sweet, but by the Taste.

The Almond-tree grows only spontaneously in the warmer Countries, as Spain, and particularly Barbary: It flowers early in the Spring, and the Fruit is ripe in August.

Sweet Almonds are accounted nourishing, but if eaten too much, are hard of Digestion, and very stuffing; of these, with Sugar, are made several Sweet-meats, as *March Panes*, and *Maccaroons*. But it is the Oil drawn from the sweet Almonds that is most in Use, and is an useful and excellent Medicine. It is of great Service in Affections of the Lungs, as Coughs, Shortness of Breath, in Soreness of the Stomach, pleuritic Pains. In the Stone, Gravel, and all Diseases of the Kidneys and Bladder, it is of singular Use, by its softening and lubricating Quality. It very much corrects the bilious Saks in the Stomach and Bowels, and is of great Advantage in the Colic, and helps a costive Habit of Body. It is commended to be given to Women with Child, to take freely of it for some time before they expect their Delivery. It is very useful for Childrens Gripes, and to purge them gently, mix'd with any opening Syrup.

The bitter Almonds are more used outwardly as a *Cosmetic*, being cleansing and beautifying. The Oil dropp'd into the Ears, is good for Deafness; and is frequently put among *Anodyne* Liniments.

The only officinal Preparation is, the expressed Oil of bitter and sweet Almonds. *Miller Bot. Off.*

Sweet Almonds contain a great deal of Oil, and a little Salt and Phlegm.

The bitter Almonds contain a great deal of Oil, more Salt than the sweet Almonds, and but little Phlegm; it is for that Reason, that the Oil of the bitter Almond will keep a longer time without growing musty, than the Oil of sweet Almonds. *Lemery de Drogues.*

Pomet adds, that the Oil of bitter Almonds, outwardly apply'd, softens hard Nerves, takes away Spots in the Skin, and brings down the great Bellies of Children. Some say, that the Oil of sweet and bitter Almonds both may be preserved from growing rancid, by the Help of Spirit of Wine tartarized.

Sweet Almonds cause Sleep, and increase the seminal Powers.

Both the one and the other agree at all times to every Age, and all Sorts of Constitutions, provided they be moderately used.

After your sweet Almonds are bruised and steeped in Water, they squeeze a milky Juice out of them, which is given to lean, consumptive and pleuritic People, and does them a great deal of good; the Reason of which is, because the Milk contains a great many oily, balsamic, and embarrassing Parts, fit for nourishing and restoring the solid Parts, moderating the violent Motion of the Humours, and allaying their Sharpness.

The Difference of Taste between the sweet and bitter Almonds proceeds in this, that there is less Salt in the sweet ones, and that this Salt is perfectly confined and cooped up by the rosy Parts, inasmuch that it can make but a very slight Impression upon the Tongue.

The bitter ones, on the contrary, contain much sharp Salt, which being but half embarrassed with the oily Parts, cause a stronger, but a more disagreeable Sensation.

Putarch tells a Story of a certain Physician, who lived with *Drusus*, the Son of *Tiberius*, and who by the Use of bitter Almonds became so great a Drinker, that he was never made drunk, and out-did all that lived in his Time that way. *Lemery on Foods.*

Some Years ago there happened a remarkable Case in this Part of the World. Ten young Gentlemen, descended of illustrious Families, used some Water-gruel, in which more than two Ounces of Arsenic, mixed with an equal Quantity of Sugar, had been put. Soon after, they were racked with great

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Disquietudes, and Gripes in their Bellies; but, by the Blessing of God, I removed all their Symptoms, and put them out of Danger, by Oil of sweet Almonds and Milk. *Hoffman.*

Oil of sweet Almonds well prepared, and taken to the Quantity of some Spoonfuls, in a little Broth, is a most effectual Medicine in all Pains and Spasms; even in such Spasms as shake the most remote Parts of the Body: For this Reason, it is very properly prescribed in convulsive Coughs, spasmodic Asthmas, Fits of the Stone, Stranguries, and Colics. *Hoffman de Consensu Partium Nervosarum.*

There are certain Poisons which prove noxious to particular Animals, and yet produce no poisonous Effects upon Men: Thus, for Instance, bitter Almonds are pernicious to Fowls, and excite Convulsions in the Stork and Dove particularly. The same Almonds, as well as the Nux Vomica, when given to Cats and Dogs, throw them into such violent Convulsions, as put an End to their Lives. *Hoffman Medicin. Rational. Systemat. Vol. 1.*

AMYLEON, or AMYLION, ἀμύλειον, or ἀμύλιον, from a Negative, and μύλη, a Mill, because made of Corn without grinding. Starch. See AMYLUM.

Hippocrates in his Treatise of the Diseases of Women, L. 2. recommends this, roll'd up in Wool, as a Pessary, good against a Discharge of Water from the Uterus.

AMYLUM, Starch.

AMYLUM is so called, because it is prepared without the Help of a Mill (from a Neg. and μύλη, or μύλα, a Mill). The best is what is made of Sitanious Wheat, (such as is sown and reaped in three Months) in *Greece* or *Egypt*. It is prepared of this Kind of Wheat, cleaned, in the following manner: They water it five times in the Day, and, if it may be done, in the Night also; as soon as it is soften'd, they gently let the Water run off, without stirring it, for fear the best Part of the Grain should flow off with it: When it appears to be thoroughly soft, they pour off the Water, and tread it with their Feet; then pouring on it fresh Water, tread it again. After this, they take off the husky and branny Parts, that swim on the Top, with a Skimmer, and pass the rest through a Strainer; and as soon as this is done, they lay it upon new Tiles to be dried and condensed in the burning Sun; for if it should, in the least, continue moist, it would contract a Sourness.

It is good for Rheums in the Eyes, hollow Ulcers, and Pustules. Drank, it stops vomiting of Blood, and mollifies the Parts about the Aspera Arteria; it is usually mixed with Milk, and other Food.

Amylum is also prepared of Zea, (Spelt) macerated a Day or two in Water, then kneaded with the Hands into a Mass like Dough, and afterwards dried in the fervent Sun as before. But this Sort of Amylum, tho' very good in other respects, is unfit for medicinal Use. *Dioscorides, Lib. 2. Cap. 123.*

Amylum is made of all Kinds of Wheat, but best of the common Sitanious. It was invented in the Island of *Chios*, and the finest still comes from thence: The Name was given it on account of its being prepared without a Mill. The next in Goodness is made of a sort of very light Sitanious Wheat: It undergoes a Maceration in fresh Water in wooden Vessels, so as to be covered with the Water, which is changed five times in the Day; and it would be better, if the same were done in the Night, that it might be thoroughly mixed and softened alike, before it grows sour. When it is dried enough in Bags and Baskets, they shoot it out upon a Tile smeared with Leaven, and let it condense in the Sun. Next to the *Chian* Amylum, for Goodness, is the *Gretan*; and after these the *Egyptian*. It is valued by its Lightness, Smoothness, and Newness. *Pliny, Lib. 18. Cap. 7.*

The forbile Liquor of Amylum is proper in Fevers attended with a Diarrhoea; and, upon account of the Belly, Lentils may be mixed with it. The same may also be used in Milk, or mixed with Water, or be used alone; in which Circumstance it is fittest in Dysenteries, and Fluxes excited by coughing. In boiling put ten Drams of Amylum to four half Pints of Water. *Oribas. Med. Col. Lib. 5. Cap. 7.*

Starch is esteemed drying and astringent.

Starch, boiled with Milk, is a famous Empirical Remedy for a Diarrhoea, which happens in a Fever, or in Child-bed, and is not a bad one. Mr. *Glutton*, in a Treatise he published some time ago, lays great Stress upon a Solution of Starch, given by way of Clyster, in a Diarrhoea, either accompanied with a Diarrhoea or not; and, if the Stools are bloody, and the Intestines very much relaxed, he advises to make the Confection of Starch, as he calls it, very thick, and to add, to four Ounces of this, an Ounce of French Brandy.

Modern Method of making STARCH of Wheat.

The Grain, being well cleaned, is put to ferment in Vessels full of Water, which they expose to the Sun, when in its greatest Heat; changing the Water twice a Day, for the Space of eight or twelve Days, according to the Season. When the Grain bursts easily under the Finger, they judge it sufficiently fermented.

fermented. The Fermentation perfected, and the Grain thus softened, it is put, Handful by Handful, in a Canvas Bag, to separate the Flour from the Husks; which is done by rubbing and beating it on a Plank, laid across the Mouth of the empty Vessel that is to receive the Flour.

As the Vessels are filled with this liquid Flour, there is seen swimming at the Top a reddish Water, which is to be carefully scumm'd off, from time to time, and clean Water put in its Place; which, after stirring the Whole together, is all to be strained through a Cloth or Sieve; and what is left behind, put into the Vessel with new Water, and exposed to the Sun for some time; and as the Sediment thickens at the Bottom, they drain off the Water four or five times, by inclining the Vessel, but without passing it through the Sieve. What remains at Bottom is the *Starch*, which they cut in Pieces to get out, and leave it to dry in the Sun: When dry, it is laid up for Use.

Castellus, from *Libavius*, informs us, that *AMYLA*, in a general Sense, is used to express any Sort of Chymical Fæcula.

AMYOS, ἀμύος, from α Negative, and μύς, a Muscle. *Hippocrates*, in his Treatise de Arte, applies ἀμύος to the Leg, to express its being so emaciated, as to appear as if it had no Muscles.

AMYTHAONIS EMPLASTRUM, *Amythaon's* Plaister for Convulsions and Distortions of the Joints; it is also a Drawer.

Take of Gum Ammoniac, Wax, Bdellium, each eight Drams; of Turpentine, Illyrian Orris, Galbanum, each twenty Drams. *P. Æginet. Lib. 7. Cap. 17.*

AN-PATER, Sulphur. *Rulandus*.

AN-FIR, Filius, Mercury. *Rulandus*.

AN-FIRARTO, Spiritus, Salt. *Rulandus*.

ANA, ἀνά, a Greek Proposition much used in Prescriptions. It is explained under the Article *A*. which see. *Ana* is also used by some enthusiastical Writers to signify the Mind; and *Castellus* tells us it is the Name of a certain Idol.

ANABASIS, ἀνάβασις, from ἀναβαίνειν, to ascend, signifies the Augmentation or Increase of a Fever in general, or of a particular Paroxysm. Hence *ANABATICA* is synonymous to *EPACMASTICA*, both being Epithets of Fevers, which, in their Progress, continually increase or grow more violent.

ANABOLE, ἀναβολή, from ἀναβάλλω, to cast up. The discharging any thing upwards, as by Vomit.

ANABROCHISMOS, or *ANABRONCHISMUS*, ἀναβροχισμός, or ἀναβρογχισμός, from βροχίζω, a Noose. An Operation performed upon the Hair of the Eyelids, when they are offensive to the Eye. It consists in engaging the offending Hairs in a sort of Noose, by means of a Needle, threaded with a fine Thread doubled, or a Woman's Hair, after passing the Needle thro' the external Part of the Eyelid, near the Hair. *Celsus* takes Notice of this Operation, *Lib. 7. Cap. 7.* in these Words:

Quidam aiunt, acu transsui juxta pilos exteriorem partem palpebræ oportere, eamque transmitti duplicem capillum muliebrem ducentem; atque ubi acus transiit, in ipsius capilli sinum, qua duplicatur, pilum esse injiciendum, & per eum in superiorem palpebræ partem attrahendum, ibique corpori adglutinandum, & imponendum medicamentum, quo foramen glutinetur: sic enim fore, ut si pilus in exteriorem partem postea spectet.

Paulus Ægineta confines the Operation to Cases where only one or two, or at most three, Hairs irritate the Eye. He describes the Operation, *Lib. 6. Cap. 13.* but somewhat obscurely.

ANABROSIS, ἀνάβρωσις, from ἀναβρώσκειν, to devour. A Corrosion or Exulsion of the solid Parts by acrid Humours. It means the same as *DIABROSIS*.

ANACAMPSEROS, *Anacampseros vulgo Faba crassa*, J. B. Pit. Tournel. *Telephium vulgare*, C. B. *Telephium alterum sine Crassula*, Dod. *Cotyledum alterum*, Dioscor. Col. *Scrofularia media vel tertia*, Brunf. *Fabaria*, Matth. *Acetabulum alterum*, Cond. in Diosc. *Faba inversa*, Ad. Lob. *Crassula sine Faba inversa*, Ger. *ORPINE*, or *LIVE-LONG*.

It is a Plant which grows to the Height of one Foot, or more; its Stalks are strait and round, clothed with thick Leaves, and full of Juice like that of Purslane, but longer, of a pale-green Colour, often intermixed with a little Red; some are notched at their Edges, others entire; of an insipid viscous Taste. The Flowers grow on the Tops of the Stalks in large Bunches, and almost like an Umbrella, of a white or purplish Colour; every Flower is composed of five Leaves, disposed like a Rose, which, falling, are succeeded by a Fruit composed of many Husks, which forms a sort of Head full of small Seeds. The Root is glandulous, and formed of many white Bulbs like Turneps, of an insipid Taste. This Plant grows in uncultivated, stony, and shady Places. It contains a great deal of Phlegm and Oil, and but little Salt.

It is drying, cooling, resolute, deterfive, vulnerary, and consolidating, proper for Ruptures, and to take out Spots in the Skin. *Tournefort de Drogues*.

Columna has confounded his *Rapuntium umbellatum*, with the *Telephium floribus purpureis*, Lob. *C. Bauhine* is guilty of the same Fault; but it is easy to see, by *Columna's* Description, and by his Figure of the Flowers, that he has given a good Design of the *Trachelium azureum umbellatum Ponaë*. Bald. Ital. 44.

The Leaves of the Orpine have a glutinous Acidity, and give a strong red Tincture to the blue Paper. This Plant, being analysed, yields a good deal of Acid, a moderate Proportion of Earth and Oil, and a pretty deal of volatile concrete Salt, Thus there is room to believe, that it contains an aluminous Salt, mixed with Sal Ammoniac, and wrapt up in a little Sulphur. It is deterfive, astringent, and vulnerary: Being applied externally, it hastens the Suppuration of Tumours. *Martyn's Tournesfort*.

ANACAR, ἀνάκαρ, a Greek Adverb, sometimes used by the Greek Medicinal Writers, to express upwards, or towards the superior Part.

ANACARDIOS ANTIDOTUS THEODORETUS, the Antidote of *Anacardium*, a divine Gift.

Take of Spikenard, Malabathrum, Cloves, Saffron, Cassia, Epithymum, Flowers of Schœnanth, Myrobalans, each three Drams; of yellow Aloes, twelve Drams; of Cliestnut, Ginger, Mastich, each one Dram; of Illyrian Orris, six Drams; of Anacardium, Agaric, each one Dram; of Asarabacca, six Drams; of Seed of Smallage, one Dram; of Costus, one Dram and a half; of Pepper, three Drams; of Fennel, and its Juice, of each eight Drams: Beat the Fennel in a Mortar, and macerate it in Vinegar three Days; then boil it well, and carefully strain it. Add of a sufficient Quantity, Attic Honey, or Sugar, and boil it again to the Thickness of Honey. Let the several Ingredients be pounded together, and well levigated. If there be Plenty of Fennel, press out the Juice, and the Antidote will be the better.

It is good in all obstinate and dangerous Diseases, for epileptical Persons, and Demoniacs; for Pains in the Head, Disorders of the Thorax, Pleurifies, Asthmas, Peripneumonies, and such Stomachs as turn the Food sour; and for any malignant Distemper of the Belly or Stomach. It wonderfully revives and refreshes those who are just got over a tedious Distemper, and have not yet recovered their Colour. It helps the Yellow Jaundice, Anasarca, Consumption, Distempers of the Kidneys; and does Service to those who are continually subject to Colic Pains: It corroborates those who have a Sense of Weight all over their Bodies: It is beneficial in inveterate Distempers, and intermitten Fevers, given in the Intervals; and helps the Gout, if given before the Fit. It is excellent in Womens Distempers, and in particular the Strangury, Difficulties in Menstruation, and Suffocation of the Uterus. It helps those who, by their Habit of Body, are subject to miscarry, and gently loosens the Belly: It cures Inflammations of the Womb, and the Furor Uterinus. To say all in a Word, it is a divine Gift; and whoever uses it once or twice in the Spring and Autumn, and is not very faulty in his Diet, shall live free from Diseases. It is to be taken to the Quantity of a Hulse-nut, in the Morning. *Myrepsus, Sect. 1. Cap. 218. Aetii Tetrabib. 4. Serm. 1. Cap. 122.*

Another Preparation:

Take of yellow Aloes, an Ounce and a half; of Orris, Cassia Lignea, each seven Drams; of Ginger, Anacardium, Carpopalsamum, each four Drams and a half; of Malabathrum, Spikenard, Myrobalans, Spignel, Epithymum, each three Drams one Scruple; Cloves, Flowers of Schœnanth, Pontic Rhubarb, Mastich, each one Dram three Grains; the Bark of the Root of Fennel, washed, one Pound: Macerate them in two Pints of good Vinegar for seven Days; then boil them and strain them, and add two Pounds of pure Attic Honey, or a sufficient Quantity of Sugar, and boil it to the Consistence of Honey. In this put the Ingredients well beaten, and, after well working them together, set them aside, in a proper Vessel, for Use.

It is good against Epilepsies, Apoplexies, and Paraplexies, that owe their Rise to Phlegm and Melancholy; and is excellent in Female Disorders. *Myrepsus, Cap. 219.*

ANACARDIUM, a sort of Fruit, of which there are two Sorts, the Oriental and Occidental. The Oriental is thus distinguished:

ANACARDIUM, Offic. Ger. 1360. Emac. 1544. Mont. Exot. 15. Commel. Flor. Mal. 15. Park. Theat. 1563. C. B. Pin. 511. J. B. 1. 334. *Anacardium vel Anacardus*, Chab. 24. *Anacardium Orientale*, Jonsl. Dendr. 156. Pluk. Almag. 28. *Ospata*, Hort. Mal. 4. 95. Tab. 45. *Arbor Indica, fructu conoide, cortice pulvinato nucleum unicum, nullo officulo testum, claudente*, Raii Hist. 2. 1566. **THE ANACARDIUM, or MALACCA-BEAN-TREE.**

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The Oriental Anacardium is a Seed growing at the Top of a conical Fruit in the *East-Indies*. It is, in Shape and Colour, like a Bird's Heart, covered with a tough Skin, including a spongy Substance, full of an hot caustic Oil underneath; in which, inclosed in another Skin, lies the Kernel, in Taste like an Almond. It is said to be hot and dry, to comfort the Heart and Vitals, and to excite Venery. It is rarely to be met with, and now never prescribed, the *Mel Anacardium* being left out in the three last Editions of the *Dispensatory*. They say that the *Indians* use the caustic Oil of this Fruit, in staining their Chints and fine Calicoes, which sets the Colours so in, that they are not to be washed out. *Miller Bot. Off.*

They contain a great deal of Oil and Salt.

They rarely and purge the pituitous Humours, are resolving, refresh the Brain, and strengthen the Memory, being taken in Decoction. *Lemery de Drogues.*

In some old Dispensatories we find a Composition named *Confectio Anacardina*, which is not now in Use. *Hoffman*, in his Treatise of *Officinal Medicines*, tells a very surprising Story concerning this Confection; which is, that by the Use thereof a young Man, who was before so dull and stupid, as not to be capable of learning any thing, became in a short time a very great Genius, and comprehended every thing that was taught with Ease. It was thought very proper to quicken the Motion of the Blood; and, on some Occasions, is said to cause a Fever; which shews that the whole Nut, not the Kernel only, was an Ingredient in this Confection. *Geoffroy.*

I find the ANACARDIUM recommended by *Schroder*, and most other Writers on the *Materia Medica*, for quickening the Senses, and strengthening the Memory. As very few Drugs have such useful Virtues attributed to them, I shall give the Preparations of Anacardium, as delivered by *Arnaldus de Villa Nova* and *Zwelfer*, in the *Pharmacopœia Augustana*.

Take of Anacardium, bruised, three Drams and an half; or Honey of Anacardium, two Drams; these Remedies are endued with a natural Property of restoring a lost Memory.

Confectio Anacardina, a Confection of Anacardiums, which helps the Memory, restores lost Reason, removes a Lethargy, and cures the Gout, Hemorrhoids, and those who are oppress'd with Melancholy or Phlegm.

Take of Emblic, and Belleric Myrobalans, long Pepper, and white Pepper, each twelve Drams; Ginger, Honey of Anacardium, each eight Drams; Castor, Storax, Cloves, each five Drams; Camomile Flowers, Bay-berries, Cypurus, each three Drams; Sugar, twenty Drams; Honey, a sufficient Quantity. The Dose is the Quantity of a small Nut in Whey, warm Wine, or a Decoction of the Seeds of Anise and Fennel; and the Patient is to avoid the Cold, and to abstain from phlegmatic Meats, as well as from Anger, Venery, and Drunkenness.

This Remedy quickens the Wit and Senses, brightens the Understanding, and is a proper Confection for wise Persons, and such as desire to be so.

The Anacardiums, before they are fit to be used in Medicine, are to be thus prepared:

Bruise them very well in a Mortar, and then put them in the strongest Vinegar, where let them macerate for seven Days. After this, boil them over a gentle Fire to a Consumption of two Thirds of the Vinegar; then strain off the rest from the Dregs, and keep it for Use.

To make Honey of Anacardiums.

Mix, with the Vinegar aforesaid, an equal Quantity of clarified Honey, and boil them together to a proper Consistence. *Arnaldus de Villa Nova, Lib. 1. Cap. 28.*

MESUE'S CONFECTION of ANACARDIUMS.

Take of Chebul, Emblic, Belleric, and *Indian* Myrobalans, of black Pepper, of long Pepper, and of Castor, each two Drams; of Costus, of prepared Anacardiums, of white Sugar, of the Seeds of Rocket or Fennel, of Bay-berries, each six Drams; and of Cyperus four Drams.

Let the Anacardiums be pounded by themselves; and when the other Ingredients are pounded, mix all together, and beat up into an Electuary, with new unsalted Butter, and pure Honey, each five Ounces and an half.

This Medicine is good against all cold Disorders of the Brain, and lower Belly; purifies the Blood, and rendering the Animal Spirits pure and fine, thereby invigorates all the Senses, the Apprehension, the Intellect, and the Memory; for which Reason *Mesue* dignified it with the specious Title of the *Confection*

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of the *Wife*, and, by its means, confidently promised Assistance to those who were desirous of acquiring Knowledge. It also warms the whole Vascular System, and imparts a lively Heat to all the Body. But this Medicine is to be used cautiously, and not till a Fortnight after the Fermentation is over. After taking it, the Patient is to beware of Labour, Anger, Venery, and Drunkenness. *Pharmacop. August.*

CEPHALIC CONFECTION of ANACARDIUMS.

Take of the Waters of Marjoram, Orange-flowers, and Clove Gilly-flowers, each six Ounces: These being pour'd into a glass Cucurbit, immerse in the Liquor three Ounces of prepared Anacardiums: Let them macerate for twenty-four Hours, the Vessel being closed all the while; then strain off, and in the strained Liquor dissolve two Pounds of the best Sugar; by the sole Dissolution of which, reduce it to the Consistence of a Syrup; to which add, while it is still warm, that so they may, as it were, dissolve in it, one Dram of Ambergrise, one Dram of Lemon-seeds, with their Husks taken off, two Drams of the Resin of Storax, well pounded, and one Dram of Gum Labdanum: To all these, when dissolved, add the following Ingredients; one Ounce of the Powder of prepared Anacardiums, an Ounce and an half of the true Leopard's-bane Root, an Ounce of the Powder of Aloes Wood, full of its Gum; of the lesser Cardamoms, of Cubebs, and Coriander-seeds, each two Drams; of Nutmeg, half an Ounce; of Mace, three Drams; of Cloves, two Drams; of *Indian* Nutmeg, preserved and beat to a Pulp, three Ounces; of distill'd Oil of Cinnamon, one Scruple, mixed with half an Ounce of Sugar of Roses.

Mix all up into an Electuary, which is a precious and excellent Medicine for a cold and weak State of the Brain, and Animal Faculty; for strengthening the Stomach, preventing Apoplexies and Epilepsies, recruiting old Age, strengthening the Memory; and, lastly, excellent for all such Disorders of the Brain and Stomach as proceed from Cold. Its Dose is from two Drams to half an Ounce. *Pharmac. August.*

The Occidental Anacardium is thus distinguished:

ANACARDIUM OCCIDENTALE, Jonsf. Dendr. 156. *Anacardium Occidentale*, Cajou, Mont. Exot. 9. *Anacardium Occidentale* Cajous dictum, officulo reni leporis figura, Herm. Cat. Hort. Lugd. Bat. 36. Comm. Flor. Mal. 15. *Anacardii alii species*, C. B. Pin. 512. Herm. Mus. Zeyl. 37. *Anacardus Zeylanica*, folio nucis Juglandis Cajous, Kaghu, Ejusd. 55. *Cajous*, Ger. 1360. Emac. 1544. Park. Theat. 1658. J. B. 1. 336. Chab. 24. Laet. 606. *Acajou*, Tourn. Inst. 658. Boerh. Ind. A. 2. 262. *Arbor Acajou*, vulgò *Cajou*, Pis. Mant. Arom. 193. *Acaiaiba*, Pis. (Ed. 1658) 1120. *Acajaiba*, & *Acajuiba Brasiliensibus*, Marcg. 94. *Kapamara*, Hort. Mal. 3. 65. Tab. 54. *Pomifera seu potius Prunifera Indica*, nuce reniformi summo pamo innascente, *Cajous dicta*, Raii Hist. 2. 1694. Cat. Jam. 187. Sloan. Hist. 2. 136. THE CAJOU, or CASSU-TREE. Dale.

This grows at the End of a Fruit, in Shape and Colour like a small ripe Apple; in Form and Bigness it resembles a Hare's Kidney, only the End next the Fruit is bigger than the other. The Outside is covered with a tough, ash-coloured Bark, under which is a spongy Substance like the former; it contains a larger Quantity of caustic burning Oil; and under that, in a soft Shell, a white pleasant Kernel. It grows both in the *East* and *West Indies*, on a large Tree, having pretty big, stiff, oval Leaves, with several hard Veins, running almost directly across from the middle Rib. It bears Tufts of five-leaved white Flowers. In *Jamaica* they eat the Kernel of this Fruit, after it has been roasted in the Embers till all the caustic Oil is consumed. They bring them to Table as a Desert: They are much of the Nature of the *Eastern Anacardia*. The caustic Oil is very good for Corns and Warts. *Millar Bot. Off.*

Geoffroy adds, that the Fruit of the Tree is called, in *Brasil*, *Acajaiba*. It is proper to take Freckles or Sun-burn from the Face; but Women ought never to use it in the time of their Menses; because, in that Case, it often causes an Erysipelas; though even that may be cured by a Wash made of Brandy and Water. *Geoffroy*. See ACAJAIBA.

ANACATHARSIS, ἀναθάρασις, from ἀνακαθαίρω, to purge upwards. A Purgation of the Lungs by Expectoration. I don't know that it is used by Authors in any other Sense, tho' *Blancard* says it includes Vomits, Sternutatories, Errhines, Masticatories, and Medicines that promote the Discharge of Saliva. Hence

ANACATHARTICA, Medicines which promote Expectoration.

ANACESTOS, ἀνέστος, incurable, from a Negative, and ἄστος, a Remedy. It is sometimes wrote ἀνέστος.

ANACHMUS, an incorporeal Spirit. *Dornius* from Παραχμῆς.

ANACHREMPSIS,